SEPTEMBER 1955

products finishing

FINISHES ON METAL PRODUCTS

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How to paint a bathroom wall

12 FEET A MINUTE!

What kind of finish can be put on aluminum wall tile that will withstand stamping and forming *after* painting . . . resist moisture, heat, chipping and marring . . . compare favorably with much heavier and costlier types of tile in beauty and durability?

Metal Tile Products Co., Hastings, Michigan, put these problems up to Sherwin-Williams technicians. Special formulations were developed which are rolled on aluminum strip continuously at the rate of 12 feet a minute, then baked, stamped and formed. Result: a product which has experienced a phenomenal growth in sales...required repeated plant expansion . . . promises to require more.

Sherwin-Williams experience in prefinishing metals is one of many types of finishing help available. Investigate—write The Sherwin-Williams Co., General Industrial Division, Cleveland 1, Ohio. (In Canada: 2875 Centre St., Montreal.)

SHERWIN-WILLIAMS

Industrial Finishes

PRODUCTS FINISHING — SEPTEMBER, 1955

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5	18	31	44	57	70	83	96
6	19	32	45	58	71	84	97
7	20	33	46	59	72	85	98
8	21	34	47	60	73	86	99
9	22	35	48	61	74	87	100
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Your Monthly Source For Finishing Ideas

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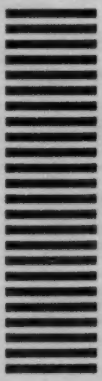

DO YOU NEED ANSWERS TO THESE QUESTIONS?

1. How can I electroclean steel at lower cost?
2. How can I find a brass cleaner that gives better protection against tarnishing?
3. How can I reduce rejects due to faulty electrocleaning of zinc die castings?

***Answer* 1** Following an Oakite recommendation, one plater made a small change in his steel-cleaning cycle and soon had two tankfuls of cleaning solution doing the work of three—and the plate adhesion was improved. *See booklet offered below.*

***Answer* 2** Oakite has a new brass cleaner that provides scientific protection against the oxygen that tarnishes brass and other copper alloys during the application of reverse current. *See booklet offered below.*

***Answer* 3** Oakite has an anodic conditioner that offers brighter plating of zinc die castings . . . with no anodic blackening and fewer rejects. *See booklet offered below.*

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Send me the free booklets I have checked below:

☐ "Four good steps toward better electroplating on steel"

☐ "What's NEW for electrocleaning brass and other copper alloys"

☐ "Good news about electrocleaning zinc-base die castings"

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Address_____

For more data circle **105** on Reader Service Card

Put this "Plus" in your polishing

ALUNDUM B abrasive adds the time-saving product-improving "TOUCH of GOLD" to every set-up*

Here are the reasons why ALUNDUM B abrasive in your polishing set-ups will help each wheel last longer, produce more, and polish better:

Excellent cutting action. This development of Norton's famous ALUNDUM abrasive cuts fast, clean and cool — ideal for polishing jobs ranging from roughing to finishing.

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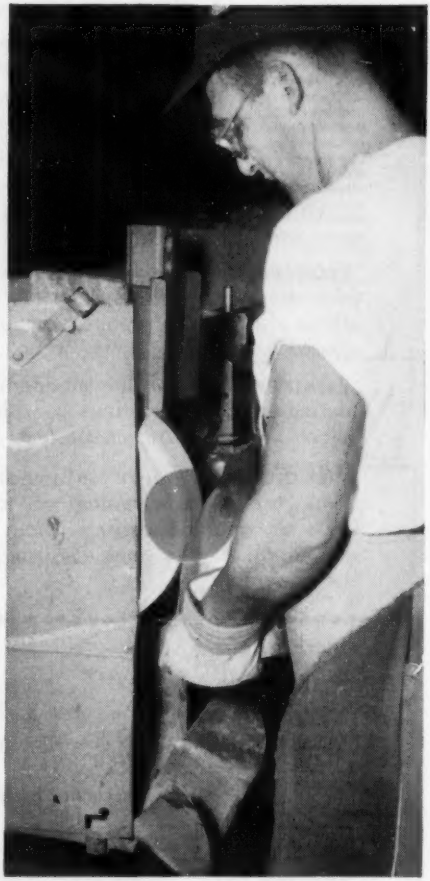
Made in all grit sizes, from 20 through 240, to cover the widest range of polishing operations.



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is ready with prompt service on ALUNDUM B polishing abrasive. Or write to NORTON COMPANY, Worcester 6, Mass. Distributors in all principal cities, listed under "Grinding Wheels" in your phone directory, yellow pages. *Export:* Norton Behr-Manning Overseas Incorporated, Worcester 6, Mass.

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G-290

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—and saves on compound—it's "metered"!

Liquimatic®

the perfect liquid compound for all metal finishing

How much of the compound in your buffing room is wasted... in the nubbin pile, or in "over-heading" buffs? There's a way to "meter" the compound you use—the Liquimatic way. An electrically timed system in the Liquimatic Process feeds the exact amount of liquid compound for the exact cut you need. While compound is being saved, buffs are being saved too ...continual lubrication extends buff life up to 400%.

These two cost-saving advantages alone soon pay for a complete Liquimatic Application System. But there are still other ways Liquimatic will help you cut costs. No hand application, and no changing of bars will effect substantial down-time savings for you... and Liquimatic's ease of cleaning means even further economies. Now—when production must be upped, and costs lowered – profit from Liquimatic—over and over again.

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Liquimatic ...

gives more buff mileage

These additional Liquimatic features mean real savings in terms of time, money, safety—

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INTERNATIONAL HARVESTER

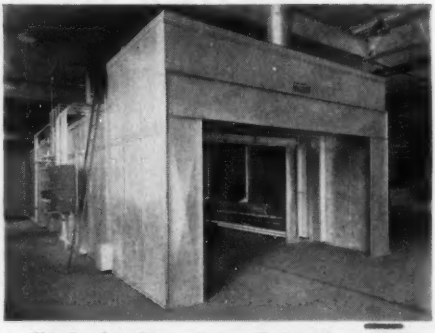
Heavy Equipment Completely Baked in 20 Minutes

These are the results which have made Burdett "Radiant-Heat" Systems the preferred paint drying method for all types of products from toys to heavy duty equipment like the crawler tractor equipment shown here.

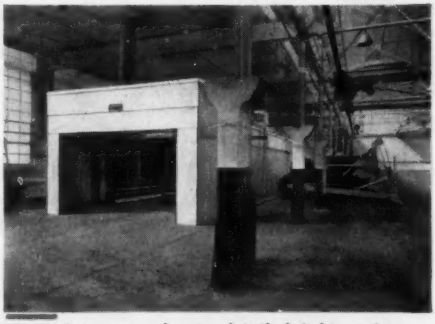
Burdett "Radiant-Heat" Ovens equipped with Model 10L Radi-Heat Line Burners are particularly suited for handling the tougher assignments, such as; tractors, bulldozers, earth movers, trucks, heavy welded fabricated parts, etc. with a remarkable saving in time and fuel, plus the assurance of a better finished product.

Here's why such speed is possible only because the radiant heat which is generated by the Burdett System reaches the metal work with virtually no loss. Baking of the enamel finish is accomplished by the combination of Radiant-Heat and controlled air recirculation. Control equipment for this oven has been specifically designed to meet International Harvester Company and JIC specifications.

Burdett No. 10L "Radi-Heat" Line Burners, as used here, satisfy unlimited applications with a new efficiency and lower cost. They have been known to cut fuel costs as much as 70%, as compared with conventional methods.



• This Burdett System is installed in the International Harvester Company Tractor Works. Enamel finishes are baked on the husky International equipment in 20 minutes time.



Let us send you detailed information on Burdett "Radiant-Heat" Ovens for your finishing department—to convert your existing oven—or for a complete new system.

BURDETT

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COMPLETE FINISHING SYSTEMS — "RADIANT-HEAT SYSTEMS", OVENS, HEATERS, AIR MAKE-UP UNITS, SPRAY BOOTHS AND WASHERS

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VOLUME 19 NUMBER 12 SEPTEMBER, 1955

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Egyptian Lab Technicians tell us the basis for the solution of 9 out of 10 industrial finishing problems lies in some formula they have previously worked out.

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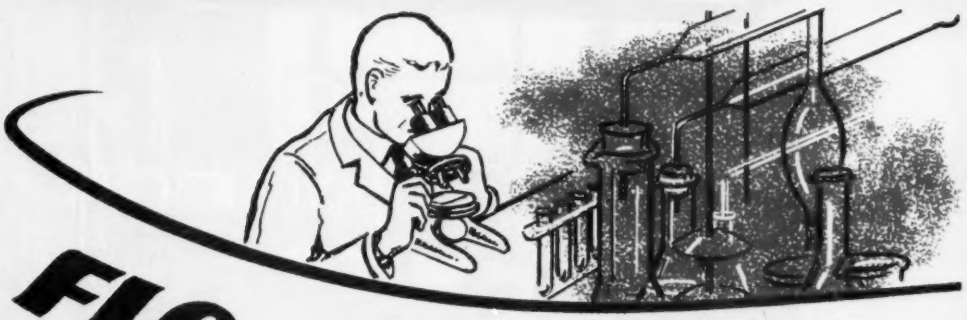

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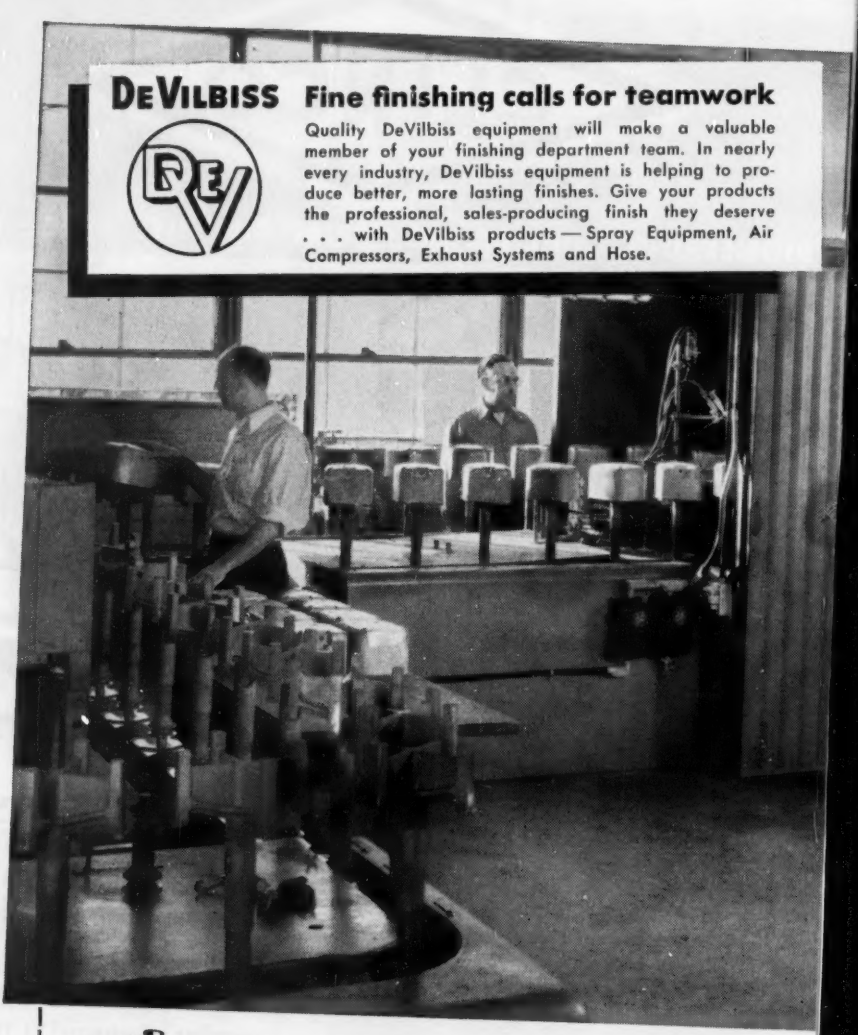

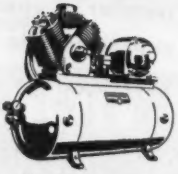

Air Compressors

Hose and Connections

Spray Guns

COULD YOU PROFIT WITH A DE VILBISS AUTOMATIC?

It's well worth investigating. Special DeVilbiss automatic machines for mass production finishing have proved profitable for many businesses.

For example, a DeVilbiss chain-on-edge, automatic spray finishing machine and bake oven handle this appliance manufacturer's finishing operations with ease.

Automatic Spray Guns cover every surface of each vacuum cleaner part with a smooth, even, two-coat hammered metal finish. The finish is baked on as it leaves the booth.

All guns are controlled by an automatic tripping device and operate only when there is work at the spray station. Parts are finished faster, better, at an absolute minimum cost per unit.

Improved finishing technique like this is typical of DeVilbiss service and products – Spray Equipment, Air Compressors, Exhaust Systems, Hose and Connections.

If you're troubled by finishing department bottlenecks, or if you would like expert advice on your finishing problems, phone our nearest branch office or write us. We welcome the opportunity to serve you.

THE DEVILBISS COMPANY, Toledo, Ohio

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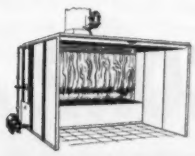

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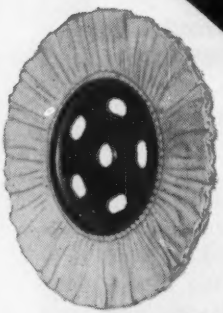

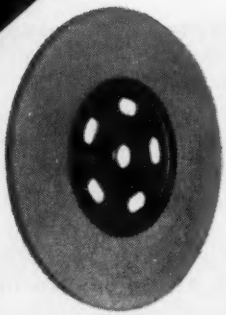

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These famous long-wearing buffs ru: cool under all buffing conditions. High count bias-cut cloth is assembled on ventilated steel centers. Each section is perfectly balanced and faced—requires no raking.

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Descriptive Catalogs Sent on Request

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"THE FOUR McALEERS"

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Delpark AUTOMATIC Filtration

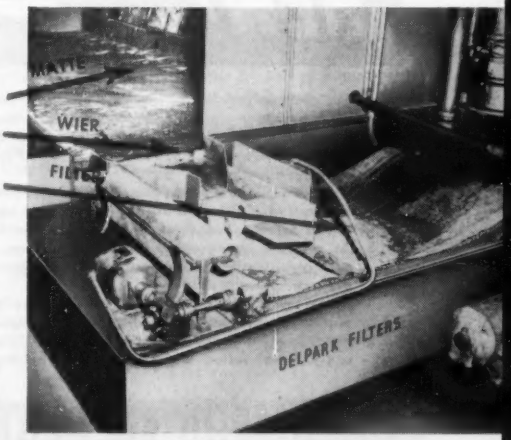
ELIMINATE . . . TANK CLEANING . . . ELIMINATOR CLEANING . . .
DOWN TIME . . . PLUGGED SPRAY NOZZLES . . . MAINTENANCE

Delpark Filtration of paint spray booth wash water saves money.

Filtration of paint from the wash water is accomplished by moving matted paint over a weir in the tank reservoir into the filter. Deactivated paint is deposited on the filter medium—the water passes through cleaned and ready for recirculation.

Delpark Filtration is your key to increased profits through lower overhead and operating costs.

Let Delpark field engineers give you the full story. Write for more complete information.



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CONTROLLED GRAIN SIZE: APW Extrusion Process* controls grain size within definite limits—*minimizes shedding!*

ROLLED FLAT PLATE ANODE SECTION:

This Photomicrograph shows highly irregular, uncontrolled grain size—a major cause of shedding and resultant rough electrodeposits.

APW EXTRUDED ANODE SECTION:

Note small, fully controlled regularity of grain size that promotes uniform corrosion, smoothest electrodeposits, less rejects.

*Pat. Pending

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STANDARD SHAPES: "RECTANGULAR" "TEAR DROP" "DOG BONE"

The common problem of shedding and all of its costly results in electroplating can now be virtually eliminated with the radically new extruded, shaped silver anodes made by an exclusive APW-developed process.

The small and uniform grain size produced in the new APW extruded anodes is controlled between definite ideal limits as illustrated above. As a result, corrosion is *smooth and uniform*—with consistently smooth electrodeposits. Rejects are a comparative rarity.

The new APW extruded anode provides equally important advantages by redistribution of mass metal in scientifically determined shapes. While conventional rolled flat plate anodes quickly wear to a sharp knife edge from which silver particles break loose readily, APW shaped anodes maintain substantially rounded edges for practically the complete life of the anode. Anode area is also appreciably prolonged. After 85% by weight has been plated off, *this APW anode retains 80% of original active surface area!* You profit with the longer, useful life of the anode . . . polarization is minimized . . . there is less silver scrap to be refined.

APW will develop special anode shapes to meet particular plating bath conditions. You are thus assured of utilizing the silver you buy in anodes most efficiently. Feel free to consult us on any anode problems you may have. ★ ★ ★

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Pay Big Dividends in Time Saved and Improved Quality

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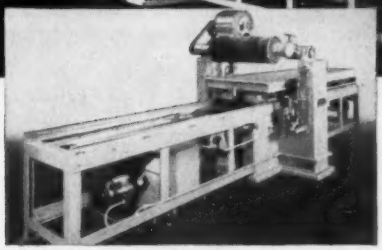

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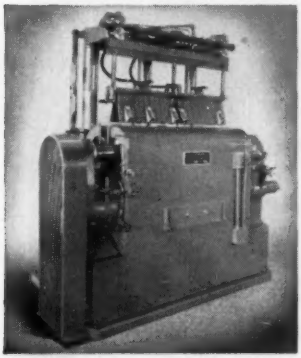

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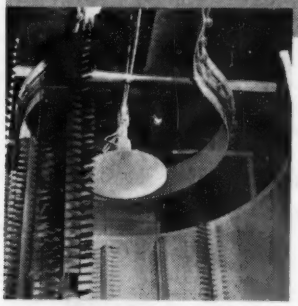
Electrostatic Spray Painting

And, in this instance* production was increased; quality of the work improved, and rejections cut to practically nothing.



* Fluorescent Fixtures of California, in their modern plant in South San Francisco, uses the Ransburg No. 2 Process Reciprocating Disc Atomizer to paint their popular line of ALL-BRITE lighting fixtures. The quotes above are from Works Manager, R. H. Shaffer.

Regardless of the type of product you manufacture, if it's painted... and, if your production justifies conveyorized painting, you should look into the savings (and improved quality) which can be yours with one of the Ransburg Electrostatic Painting Processes. May we tell you about complete Ransburg services?

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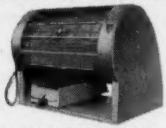
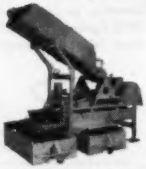


MODEL 66"—TWO COMPARTMENTS

MODEL 36"—TWO COMPARTMENTS

MODEL 32"—TWO COMPARTMENTS

MODEL 24"—TWO COMPARTMENTS



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Vol. 19, No. 12

SEPTEMBER, 1955

. . . . editorial . . .

new finish for a good product

Product manufacturers are well aware of the need to use attractive finishes.

They find it desirable, also, to adopt new finishes or new combinations of finishes periodically to give their products maximum consumer appeal. Upon these simple facts, the Finishing Industry—with an annual business volume estimated at over 1 billion dollars—is based.

The publisher of PRODUCTS FINISHING, too, makes every effort to present to readers an attractive product, a magazine containing useful and timely information on all kinds of metal finishes and finishing methods. Improvements are made in each issue, but these are not always immediately apparent to readers.

This issue features a new cover design and a new style binding, and provides an opportunity to invite the readers' attention to a number of "mechanical" changes in PRODUCTS FINISHING, made in the readers' interest. These include a new style page layout and distinctive type faces that make the reading of headlines and articles easier.

For some years, PRODUCTS FINISHING has carried a Reader Service Card for the readers' convenience in requesting information on new products. This Reader Service Card has been redesigned so that additional information on advertised products and editorial items may be obtained more easily.

The only price you pay for PRODUCTS FINISHING is the time spent in reading it. We endeavor to select and present editorial material so that the time you spend reading it is a sound investment.

Ezra A. Blount

—EDITOR

Compact, Flexible Finishing Setup for Metal Job Shop

By EZRA A. BLOUNT
Editor

THE METAL CRAFT COMPANY, Cleveland, is a metal product manufacturing and paint finishing job shop where fabricating skill is combined with finishing technique to produce high quality metal products at competitive costs. Among the many products, fabricated from steel or aluminum, that are being manufactured are the following: aluminum waterproof testing kit cases and covers, tube tester cases, oscillograph cases, wattmeter cases, traffic signals, restaurant equipment, battery tester cases, chicken pickers.

Illustrative of the manufacturing and finishing process is the method used for aluminum parts. Aluminum products are formed in various ways, according to the design of the part, and assembled by spot welding in some cases. The assemblies or subassemblies are then processed through the following cycle to prepare the aluminum surface for the paint, lacquer, or enamel coating:

1. **Clean for 1 minute** in a solution of 8 oz./gal. Wyandotte FE-21 operated at 140 deg. F.
2. Rinse in cold water.
3. Etch for 2 minutes in a room temperature solution of 6 oz./gal. of C.H.-52.
4. Rinse in cold water.

★ ★ ★

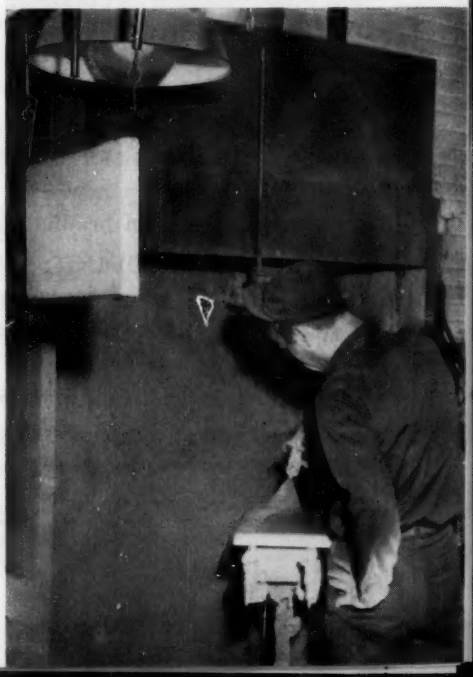


Fig. 1—Spray operator applies military specification gray baking enamel to all surfaces of formed 11-gauge aluminum cover for waterproof testing kit. Cover is then hung on conveyor for trip through infra-red oven.

5. Immerse for 1 minute in a 4 oz./gal. solution of Iridite Al-Coat held at 90 deg. F. (A longer immersion time is used if a brass or gold color is desired.) One minute is long enough to form a satisfactory film for a good paint base. The Iridite produces a film on the aluminum which prevents oxidation prior to the application of the paint finish.

6. Rinse in hot water and dry.

Stainless steel tanks are used in the cleaning, etching, and surface treating installation for the several chemical solutions, while ordinary steel tanks are used for the water rinses. Automatic temperature controls hold temperatures of solutions at the desired values.

Parts which have received the specified metal surface preparatory treatment are transported to the finishing section of the Metal Craft plant. The first finish applied there is a zinc chromate primer, sprayed on and air dried for 1 minute. This is followed by a specified baking enamel, applied in the spray booth shown in Fig. 1, after which the sprayed part is hung on the 100-foot Richards-Wilcox overhead conveyor to be transported through the infrared baking oven and around the loop of the oval conveyor to the unloading area. The infra-red oven, which is a 24-foot tunnel oven suspended from the ceiling, was designed and built by The Metal Craft Company in cooperation with The Cleveland Process Company. Each section of the oven contains 18 standard Clepco fused quartz radiant heating elements rated at 460 watts each. Switches and controls make it possible to use any combination of sections of the tunnel and regulate the heat in each section, providing great flexibility in heat supply and temperature control.

The oven, suspended from the

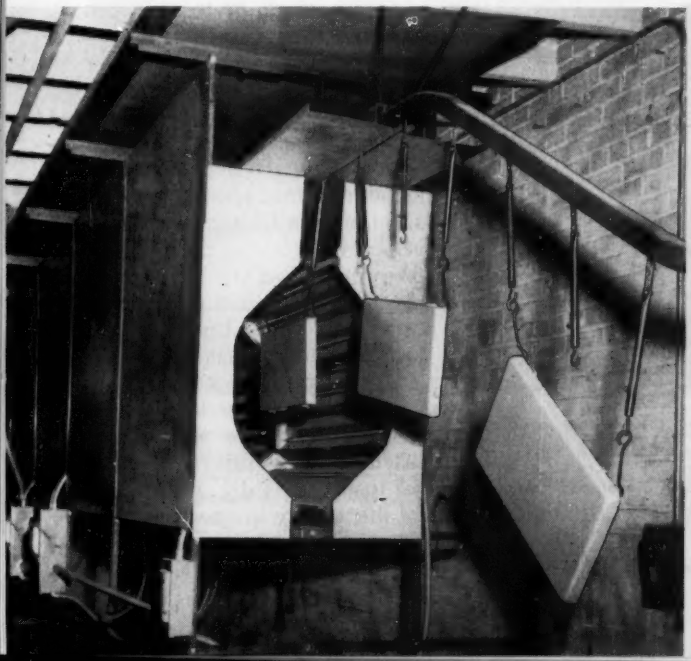


Fig. 2 — Leaving spray station, aluminum covers enter Cleveland Process Company radiant heater tunnel oven. Adjustable conveyor hangers can be seen clearly in this photo. Also can be noted the shield above the oven and under the conveyor, in addition to the oven suspension system that makes possible easy change in contour and size of the baking tunnel.

"Panels are hinged to make simpler the task of altering the tunnel interior."

plant ceiling, is designed so that it can be increased in size to accommodate larger parts if necessary. It can be widened easily, and extended by adding panels.

The radiant heaters are on panels, three panels to a side of the oven (Figs. 2 and 3). Panels are hinged to make simpler the task of altering the contour of the tunnel interior when different products dictate such action. In a large plant making the same product in quantity, such considerations would be unimportant, but for a job shop where products of all sizes and shapes are finished, it is important that the finishing equipment be as flexible as possible.

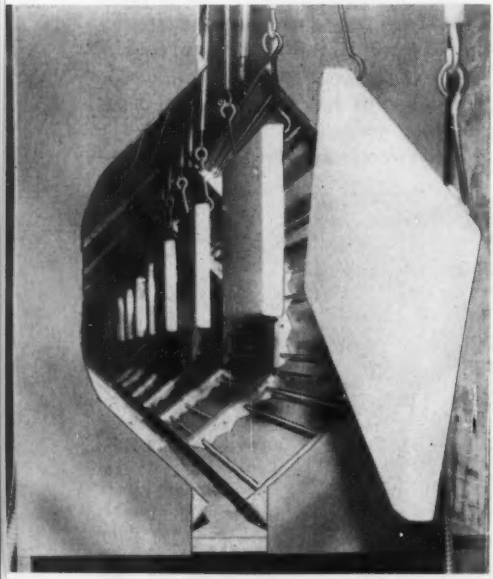


Fig. 3—This view inside the 24-foot oven shows the details of the fused quartz radiant heater installation at the Metal Craft Company job finishing shop, Cleveland, Ohio (Photographs are by PRODUCTS FINISHING)

Metal Craft reports that no adjustment of the baking cycle is required for various tints or paint colors, once the cycle for any particular type of paint has been established. Likewise, the radiant heater tunnel oven bakes about the same for various gauges of metal from 24 to 14 or 11 without a readjustment of the power input to the various sections of the oven.

Another evidence of flexibility built into the Metal Craft finishing setup can be noted in the conveyor hangers (Fig. 1). These hooks are designed so that they may be extended to any length up to 14 inches and will remain in position. A special spring design in the hanger housing makes this possible. Additional hooks to hold the painted parts are hung on the conveyor hangers. The Richards-Wilcox conveyor is adjustable so that speeds from 1.3 feet per minute to 12 feet per minute may be obtained.

Conveyor Speed and oven power settings can be coordinated so that the paint being applied receives just the right amount of bake. Periodic tests of paint film thickness, hardness, and gloss are made, and the finish must pass these tests. Parts fabricated for government agencies receive inspections by representatives of the agency in question.

The finishing installation at Metal Craft is compact, efficient, and flexible. It enables Metal Craft to produce high quality products at a competitive price—the basis of successful job shop operation.

★ ★ ★

1950-51 Bibliographic Survey of Corrosion. Published by National Association of Corrosion Engineers, 1061 M & M Building, Houston 2, Texas. 430 pages. Price, non-members NACE, $12.50; members NACE, $10.00.

Summaries of 4,454 corrosion and corrosion prevention articles, books and brochures published in 1950-51 are compiled in this volume. Bulletins published by 30 abstracting agencies were canvassed regularly for material taken from more than 500 sources the world over.

The NACE Abstract Filing Index, formulated by experts in the field of corrosion over a period of several years, is used to classify the material topically. Literature is put into eight main groups in the NACE system: general, testing, characteristic corrosion phenomena, corrosive environments, preventive measures, materials of construction, equipment and industries. Each main group is subdivided. Topical cross-references are appended to each section.

The subject index, in addition to terms in the NACE Abstract Filing System, lists many metals and alloys by trade name and indexes them as to specific properties and to behavior in specific media. There are more than 4,000 names in the author index. The appendix aids the user in locating and obtaining copies of unfamiliar foreign or domestic technical journals.

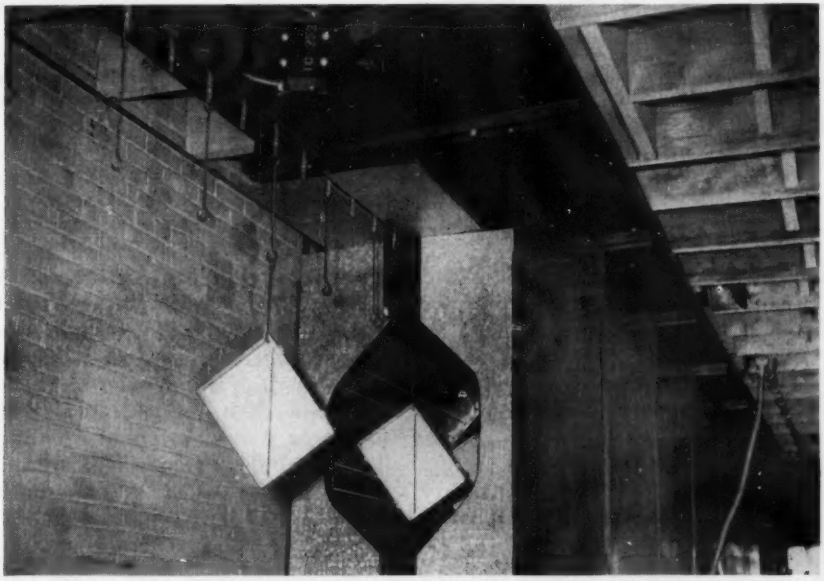


Fig. 4—Overall view of the Metal Craft finishing setup showing the oval loop conveyor, the baking oven, and the spray booth. An exhaust fan located in the ceiling at the oven exit pulls air slowly through the tunnel and removes solvent fumes from the finishing department. Metal Craft production manager reports no maintenance work has been required during year's operation. (Photo courtesy Cleveland Process Company, Cleveland 3, Ohio.)

Automatic Polishing Aluminum

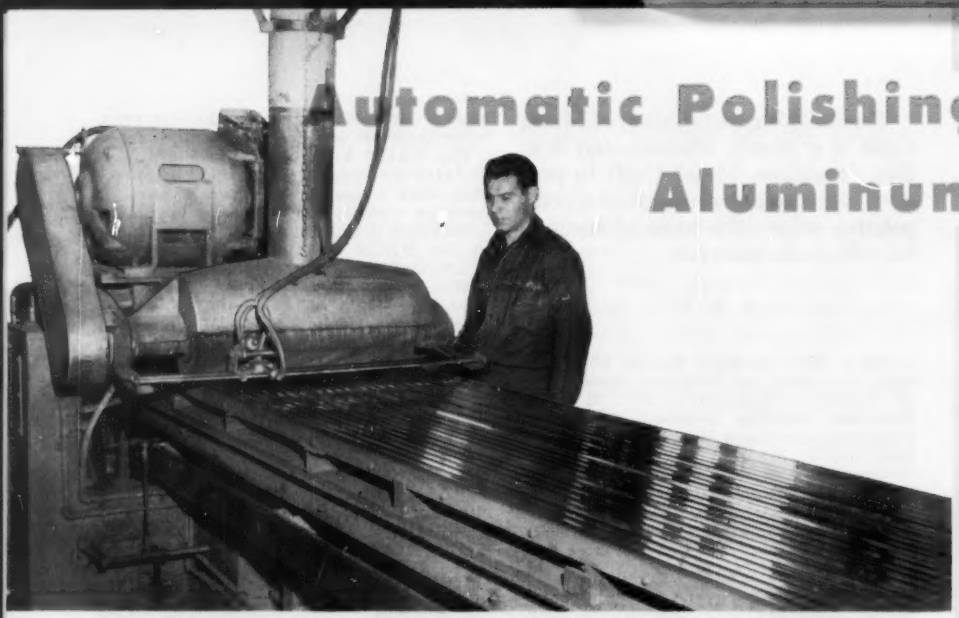


Fig. 1—On this Central Machine Works single roll horizontal, hydraulically operated automatic buffing machine, extruded aluminum trim shapes are buffed to a lustrous finish. Note spray gun for applying liquid tripoli to the buff face, and overhead exhaust stack for removing dust.

By **PAUL C. BARBER**
Production Manager
Trim Alloys, Inc.

IN TODAY'S ERA of specialized product manufacture, it is not surprising to find a manufacturer specializing in the fabrication and finishing of aluminum trim shapes. Further, that manufacturer also employs every available means to mechanize production and finishing processes, so that, while the quality of the product is carefully controlled, cost can be kept competitive.

These comments provide a brief, descriptive introduction to Trim Alloys, Inc., Boston, Mass. This company is a customer extruder and manufacturer of aluminum trim, producing a wide range of standard items as well as special shapes. A Trimalloy catalog lists 366 different shapes of trim, such as angle sections, counter edges, cabinet shapes, channels, door edges, inside corners, sink edges, stair nosings, table edges, tub edges, with a variety of sizes and designs under each classification. Currently, nearly 600 different shapes are being produced.

The trim items, generally marketed in 12-foot lengths, are shipped all over the United States and exported to a number of foreign countries.

Forming

Trim shapes are formed from aluminum billets, 5⅛ inches in diame-

Speeds Production of Trim Shapes

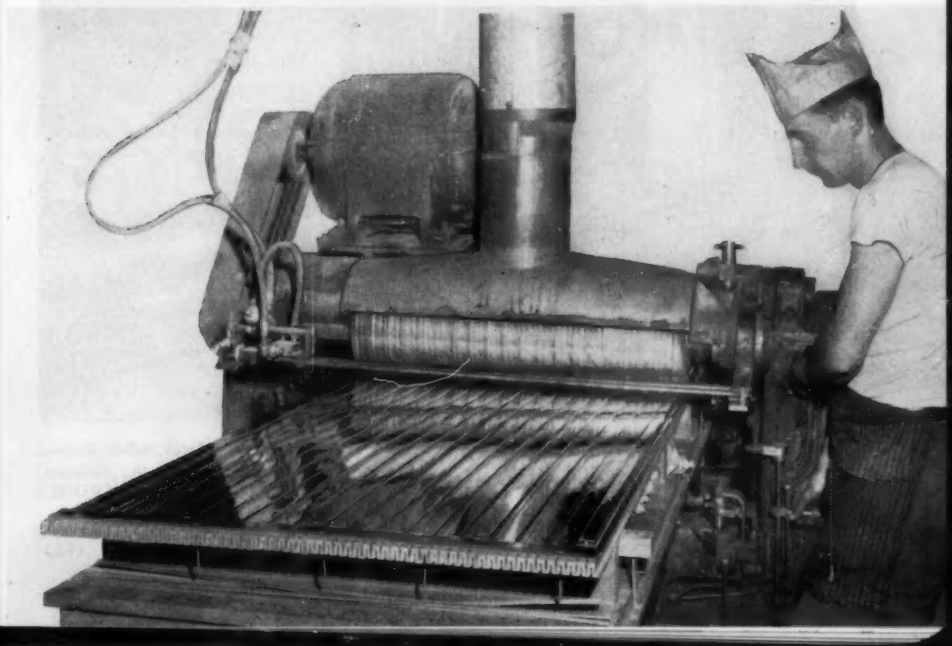
ter. The billets are cut in the proper length to produce an extrusion approximately 50 feet long. Billets are fed into an induction heater and brought to about 800 deg. F., and then automatically loaded into a 1000-ton extrusion press where the aluminum is forced through a multiple hole die to produce the desired shape. Trim Alloys makes and hardens its own dies for the extrusion process and thus maintains control over every step in the fabrication and finishing process.

Extruded shapes are straightened on a hydraulic stretching machine, cut to length (12 feet up to 15 feet long), and "aged" in a gas-fired furnace to transform the aluminum alloy to the proper condition.

Finishing

Trim surfaces which will be exposed in service are buffed to a bright lustre finish. The lustrous alu-

Fig. 2—Another Central Machine Works single roll horizontal machine in operation at Trim Alloys, Inc. Operator controls the bed travel (which is variable), cross oscillation of the bed, direction of rotation of the buffs, and application of liquid tripoli buffing compound to buffs.



minum products can also be bright anodized to provide a more wear resistant surface. Products so treated are sold under their trade name of "Anobrite."

Formed, punched or drilled trim —usually in 12-foot lengths and of comparatively light cross section—is difficult to handle and requires more than the usual skill and care in buffing. Since some of the trims do not lend themselves readily to automatic buffing, they are placed on special wood supports and buffed manually using ventilated buffs and a tripoli buffing compound. The 12-foot length must be passed completely under the buffing wheel; hence, exhaust hoods can not be mounted in the conventional manner, but must be installed at an angle to the plane of the buff.

A considerable portion of total trim production can be buffed automatically on flat-bed buffing machines (Figs. 1 and 2). The only requirement for automatic buffing is that a sufficient production run of one shape be scheduled to justify the design of holding jigs and fixtures for the automatic buffing machines.

As can be noted in Figs. 1 and 2, a number of lengths are positioned on the buffing machine bed, and buffed to a bright finish as the bed

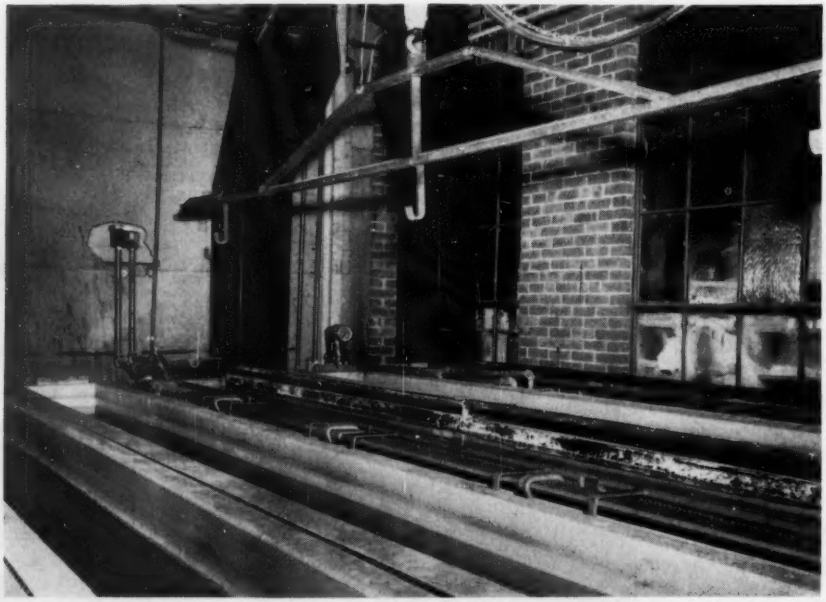


Fig. 3—Anodizing tanks are long and narrow for processing aluminum trim shapes. In center background of the photo can be noted a Powers temperature regulator, which is used for controlling temperature of the solution. (Photographs by PRODUCTS FINISHING.)

transports them under the gang buffs. The bed moves back and forth, controlled by the operator, and has a cross-oscillation at the same time. The operator applies liquid tripoli as needed by means of a spray gun, mounted in front of the buffing roll on tracks which permit the gun to travel and spray the entire face of the buff.

The travel of the buffing machine bed is controlled so that each half of the strip length is buffed separately. After the operator determines that the proper finish has been produced, he reverses the direction of rotation of the buffing wheels and controls the bed plate travel so that the other half of the strips may be buffed. This is necessary to keep the buffs from hooking the ends of the trim strips and pulling the strips out of the buffing fixture. Then he must blend to eliminate overlap marks.

Trim for which the high lustre buffed finish is specified is cleaned following buffing, wrapped in paper sleeving, and packed for shipment. Trim which is to be bright anodized is moved to the anodizing department for final surface treatment.

Anodizing

Trim shapes to be anodized are fastened firmly on a variety of anodizing racks, all of which are suspended from a 12-foot copper carrier bar. The carrier bar and racks are transported through the various steps in the anodizing cycle by the overhead crane shown in Fig. 3. Steps in the bright, non-etching anodizing cycle are as follows:

1. Clean in non-etching cleaner.
2. Running water rinse.
3. Anodize for 10 minutes in a solution of 18 per cent sulfuric acid held at 60 to 70 deg. F.
4. Water rinse.
5. Seal for 10 minutes in hot, deionized water.

The anodizing tanks are 15 feet long, 14 inches wide, and 3 feet deep. Power for anodizing is furnished by a General Electric rectifier rated at 1000 amperes and 18 volts.

Equipment and facilities at Trim Alloys, Inc., make it possible for the company to produce aluminum trim shapes of almost any cross section specified by a customer. Further, the trim may be supplied with a bright buffed or bright anodized surface finish, according to the service requirements of the end product. Careful control of product quality through each operation characterizes this organization.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

PRODUCTS FINISHING Magazine

"If anyone else around here makes a remark about our 'Mirror-Like Finish', I'll scream."

Recently Developed Anodize Coatings for Magnesium

By PETER ZYLSTRA
Process Engineer
Brooks & Perkins, Inc.

DURING THE PAST 3½ to 4 years, six different electrolytically applied coatings for magnesium have been announced. These are: the full HAE treatment; the oatmeal coating HAE; the full Dow 17 treatment; the thin Dow 17; the low voltage modification of the HAE treatment; and the recently developed CR-22 anodic treatment. The various modifications of Dow 17 and HAE have been classed as separate coatings because of the marked difference in coating characteristics produced by these methods. In addition to the listed coatings, various coating sealants have been recommended for some of the coatings. A review of the known facts about these anodize coatings and their uses follows.

In May 1951, Brooks & Perkins, Inc., announced a new type coating for magnesium. This coating, named HAE, was a development of the Pitman-Dunn Laboratory, Frankford Arsenal. HAE was classified for military purposes at first, and while the process details are now de-classified, its use in certain applications still remains under security control.

In October 1952, Brooks & Perkins received permission from the Bureau of Ordnance to develop the HAE treatment for production use. Hence a production unit for applying the coating was installed at the Brooks & Perkins plant.

The HAE bath is alkaline in nature, and is very stable. Thus only minimum control is required. Parts treated require only the removal of organic contaminants, such as oils, grease, and paints. The process itself will remove sand and many other foreign materials. Throwing power is excellent, and racks should be designed to avoid gas pockets. If gas pockets do occur, the casting can be reversed for the final 10 per cent of the treatment time to allow these areas to catch up with the full coated surface. Parts reworked after the treatment can be patched up by placing them back in the bath and applying the coating to the bare area. Variations of the coatings can be applied. Masking of accessible dissimilar inserts and specified areas is possible through the use of insulating tapes and waxes.

The HAE process is one of anodic oxidation, and the coating produced is composed of metallic oxides. The surface appearance is light

brown in color. The texture is porous, uniform, and consistent. The buildup is 0.001 inch in thickness.

A summary of the properties of HAE is as follows: it can be applied to all magnesium alloys and has good corrosion resistance, excellent abrasion resistance, good heat resistance, thermal shock resistance, good dielectric properties, and is a good paint base.

A variation of the HAE treatment is obtained in the first few minutes of processing in the HAE tank. During this time, the coating unites chemically with the surface layer of magnesium, yielding a slight buildup. The treated part has a light oatmeal color. It has good corrosion resistance and somewhat better abrasion resistance than bare magnesium, but not as good as the full HAE treatment. This process requires only a fraction of the time required for the full HAE treatment, and has been found satisfactory in applications where extreme protection and abrasion resistance are not required.

This second type of application shows promise for coating magnesium printing plates to improve the life of the plates. It has been established that the oatmeal type coating does not affect the printing quality of the plate.

Another treatment similar to the HAE treatment is the Dow 17 Anodic Coating. It is applied in the same manner as the HAE treatment, is green in color, and has many of the same properties as the HAE treatment. The time required for application is somewhat less than HAE. It gives excellent corrosion resistance.

A coating similar to the oatmeal variation of HAE is also formed in the early processing stages of the Dow-17 treatment, and it has similar properties to the HAE oatmeal coating. Although extensive test results are not available, it is probable that the two coatings can be used interchangeably.

A low-voltage modification of the HAE treatment was reported by H. A. Evangelides. This coating can be applied in a short time. Being applied at low voltage, it is not self cleaning. The appearance of the coating is similar to a heavy dichromate dip coating. The coating is given a sealing treatment in hot (not boiling) dichromate solution, which is not rinsed off.

It seems that the conditions of application and sealing are critical with this treatment. Salt spray test results have varied from specimen to specimen and from lot to lot.

PRODUCTS FINISHING Magazine

"I'm afraid your finishing school background just doesn't quite qualify you for a position with our organization Miss Van Tuyle."

Anodic Magnesium

CR-22, an anodic coating, is a development of the Frankford Arsenal. Green in color, it results in a smoother surface than either HAE or Dow 17. The bath for this treatment is prepared from materials which are commercially available.

Parts to be treated in this manner do not require special pretreatment. Degreasing by conventional methods is satisfactory. Parts to be coated are suspended in the tank by means of magnesium racks, which must make a tight contact with the parts being coated, and should be protected at the solution level by insulating tape. It is important that neither the racks nor the work contain unmasked metal inserts below the solution level, as they would prevent coating formation. The CR-22 coating can be applied to parts containing aluminum rivets, although this practice is not recommended.

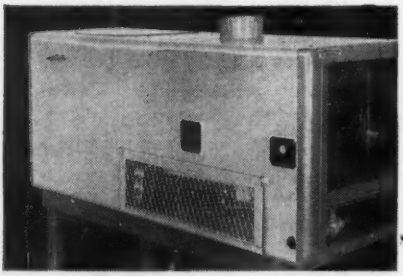
Alternating current is used. Equal areas of magnesium are connected to each terminal, and current density is calculated as the total bath current divided by the total area of magnesium surface in the bath. The recommended current is 15 a.s.f., but wide variations are possible. The bath is operated at 200 deg. F. for best results, although coatings can be obtain-

Sicon* IN COLORS

HEAT-RESISTANT FINISH

*A PRODUCT OF THE SILICONES

PROTECTS this Heater at Temperatures of 875°F.



Sicon Aluminum protects the combustion chambers of John Zink Heaters against extreme high heats of 875°F. without powdering or losing its gloss.

Sicon, in attractive COLORS, also preserves the OUTSIDE appearance of their products, adding greatly to sales appeal, and prolonging life.

For inside and outside application this amazing silicone base finish provides sure protection plus sales appeal. WRITE FOR DETAILS . . . TODAY!

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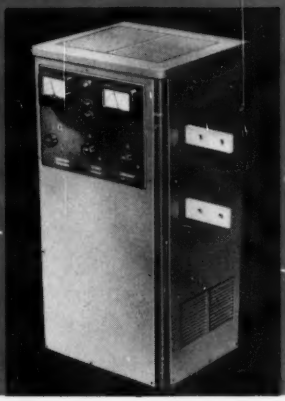
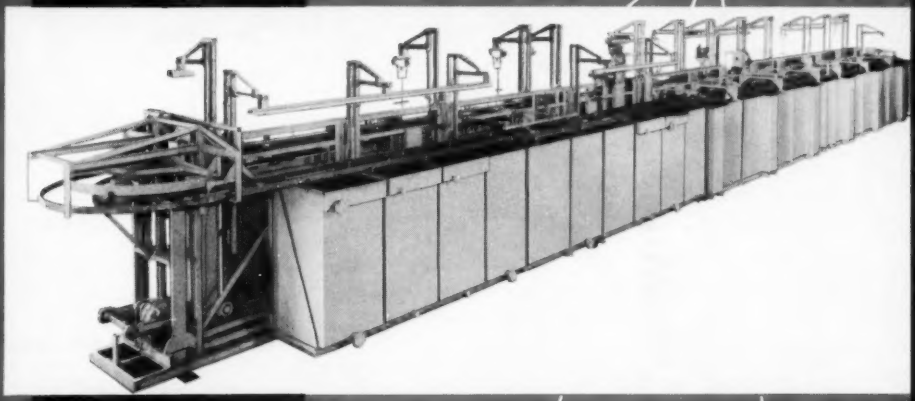
BULLETIN 455

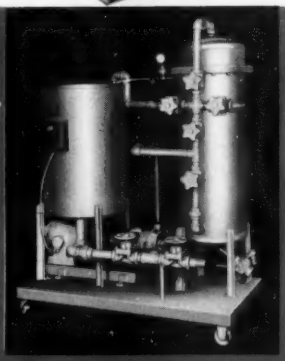
tomorrow's equipment today

WAGNER BROTHERS

automatic plating equipment and supplies







RECTIFIERS
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SEMI-AUTOMATICS
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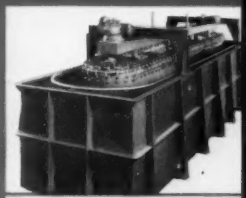
WASTE TREATMENT SYSTEMS



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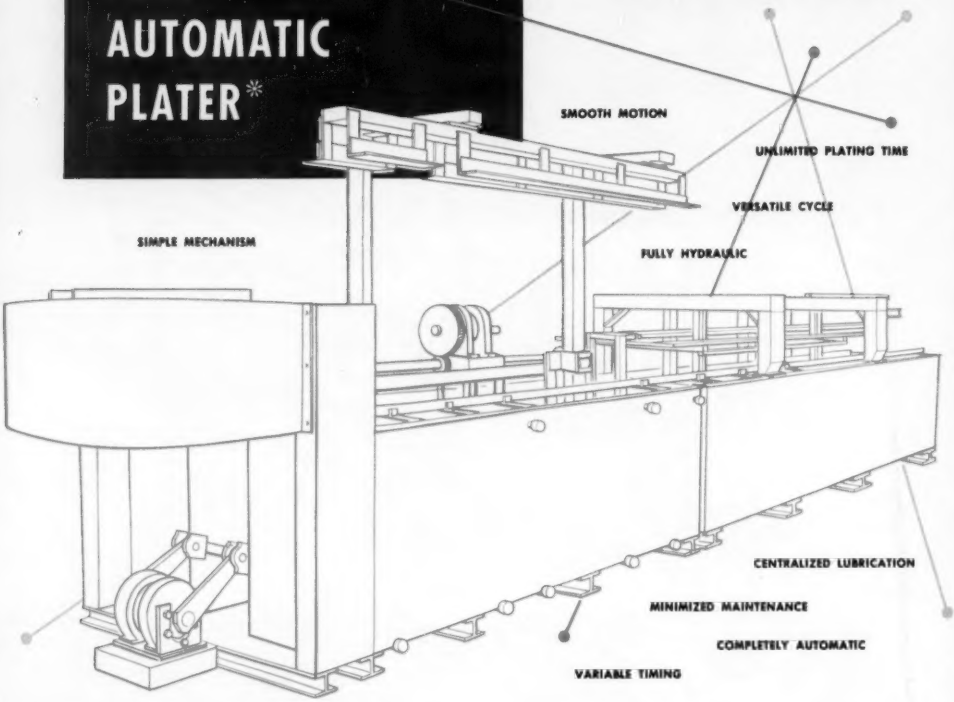
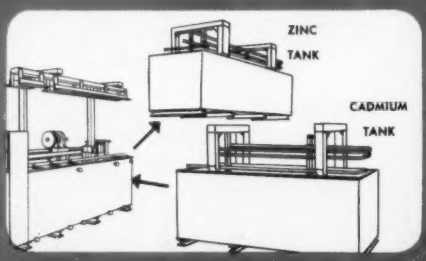
WAGNER BROTHERS *NEW* STANDARD FULLY AUTOMATIC PLATER*

revolutionary concept in plating automation now available to job platers in a standardized model



Automatic operation benefits you by increased production capacity, lowered unit cost and improved quality control—it's faster, cheaper, better.

The *new* Wagner Brothers Standard Automatic now offers you, for the first time, an automatic plater with these *exclusive* advantages:



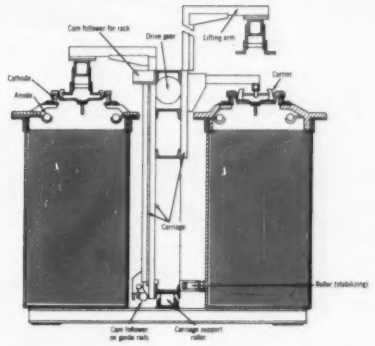
REPLACEABLE PLATING TANK

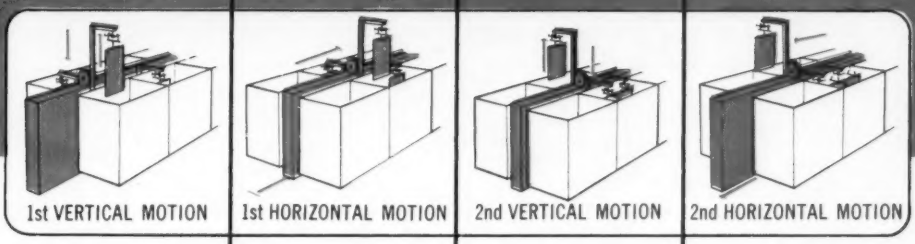
You can *change from plating zinc to cadmium in minutes;* the usual time-consuming tank cleaning operations are unnecessary. Just imagine what you'll save in time and materials. Since all conveying rails are built into the plating tank, you simply pull one tank aside and replace it with a spare. This feature gives you all the versatility of having two automatics.

*PATENTS PENDING

SIMPLE TRANSFER MECHANISM

Unique vertical transfer and return type work conveying design efficiently minimizes number of parts, subsequently reduces chances of breakdown. There are no elevating superstructures, transfer cams, chains and sprockets or hydraulic cylinders over tanks. The carriage is motivated by a hydromotor mounted at the base of the machine, fitted with a crank and link to translate the simple harmonic motion of the motor shaft to the in-line reciprocating action of the carriage.





HOW IT OPERATES — All transfer and conveying mechanism is mounted on a reciprocating carriage located between the two rows of tanks. Two basic motions are used: one forward and reverse horizontal motion of the carriage and a raising and lowering movement of lifting arms attached to the carriage. Plating racks are attached to work carriers at the loading station. When the machine is started, the lifting arms pick up work carriers on one side of the machine, carry them forward to the next station where they are lowered and disengaged. This sequence is simultaneously produced in reverse on the opposite side so that the effect is a balanced work load which requires only low hydraulic pressures.

ELECTRICALLY ISOLATED — The plating tank is a separate unit, electrically isolated from the rest of the mechanism to eliminate possibility of stray currents.

3 POINT CONTACT — The work carrier is designed to give 3 point contact at all times. Constant wiping action on electrified rails keeps contacts clean, assures constant, dependable current flow.

VERSATILE CYCLE — You can have as many as seven stations in both the pre- and post-plating cycle. Tanks are sectionalized at the factory to your particular needs.

SMOOTH PARTS TRANSFER — Our hydromotor power principle *eases* parts through their cycle without jarring them loose from carriers into the tanks.

MINIMIZED MAINTENANCE — All these features vastly minimize maintenance needs: fewer moving parts to wear, no vibration or backlash in automation, no hydraulic cylinders over tanks to contaminate solutions, centralized lubrication, built-in overload protection, working parts easily reached without disassembly, uses only low hydraulic pressures because of balanced work load, and many more.

SIMPLE INSTALLATION — Unit is delivered to your plant intact or in two completely assembled sections. You avoid costly installation.

WRITE NOW FOR COMPLETE TECHNICAL DESCRIPTION, QUOTATION

WAGNER BROTHERS, INC.

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KROME-ON*

mist-inhibiting chromium addition agent

really increases *throwing power!*

Industry has spent thousands of dollars and years of research looking for ways to increase throwing power of chromium plating baths—all without significant success. And now, like a bolt from the blue, comes Wagner Brothers' new KROME-ON liquid addition agent which not only gives you throwing power which has *doubled* production and *eliminated* rejects on the plating line, but gives you these other advantages *gratis:*

- Vastly reduced chromic acid waste due to decreased spray, drag-out and flue loss.
- Simplified waste disposal.
- Safe working conditions at reduced ventilating cost.

Unbelieveable? Well, hear this documented statement, just one of many in our files!

"We were processing 20 parts per rack through our copper-nickel cycle. We had always averaged 10 rejects at the chrome station, although we could plate 10 parts per rack without rejects, a loss of 50% in production. Then we made KROME-ON additions to the chrome bath. The throwing power was so improved, we consistently ran the full rack of 20 parts without a reject. We never had such performance with any other additive and we saved the cost of mist-inhibitors usually required." (Name of company supplied upon request.)

KROME-ON will not alter the sulfate radical content of your chrome bath, thus will not change the chosen ratio. An excess of KROME-ON will not impair operating characteristics.

Let our service representative demonstrate the obvious advantages of new KROME-ON. Technical data, prices available upon request. *Call or write now!*

*Pats. Pending

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ITHO IN U.S.A.

Please forward full details on the new KROME-ON mist-inhibiting addition agent to:

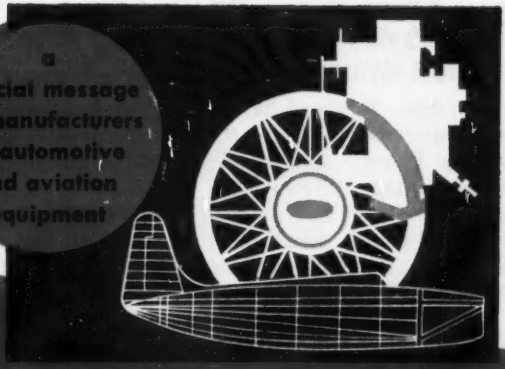
Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

a special message for manufacturers of automotive and aviation equipment



need a finish for low cost corrosion protection or showroom sparkle? *specify*

IRIDITE

Here's a finish for non-ferrous parts that gives high corrosion protection, a firm and lasting base for paint or showroom sparkle . . . yet at low material and production costs. And, you can easily "Touch-up" scratches, repairs, welds, etc. on light metal parts! Here's Iridite . . . and here's how you can use it:

ON ZINC AND CADMIUM you can get highly corrosion resistant finishes to meet any military or civilian specifications and ranging in appearance from olive drab through sparkling bright and dyed colors.

ON COPPER . . . Iridite brightens copper, keeps it tarnish-free; also lets you drastically cut the cost of copper-chrome plating by reducing the need for buffing.

ON ALUMINUM Iridite gives you a choice of natural aluminum, a golden yellow or dye colored finishes. No special racks. No high temperatures. No long immersion. Process in bulk.

ON MAGNESIUM Iridite provides a highly protective film in deepening shades of brown. No boiling, elaborate cleaning or long immersions.

AND IRIDITE IS EASY TO APPLY. Goes on at room temperature by dip, brush or spray. No electrolysis. No special equipment. No exhausts. No specially trained operators. Single dip for basic coatings. Double dip for dye colors. The protective Iridite coating is not a superimposed film, cannot flake, chip or peel.

WANT TO KNOW MORE? We'll gladly treat samples or send you complete data. Write direct or call in your Iridite Field Engineer. He's listed under "Plating Supplies" in your classified telephone book.

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Iridite is approved under government specifications

Manufacturers of Iridite Finishes for Corrosion Protection and Paint Systems on Non-Ferrous Metals, ARP Plating Chemicals.

For more data circle **125** on Reader Service Card

ed at a temperature as low as 77 deg. F. The process is operated at a constant current density. Power is supplied from a variable voltage source capable of delivering the required current over a range of from 0 to 350 volts. Either the power supply or the tank must be isolated.

The coating process is considered complete at a maximum of 320 volts, but thicker coatings can be obtained by continuing the treatment to higher voltages. Treatment time is dependent upon current density, voltage, and temperature, but it should not exceed 12 minutes, using the above conditions. Agitation is used with the bath, primarily as a means of keeping temperature uniform.

The CR-22 coating has been applied successfully to AZ-31, AZ-61, AZ-92, AZ-63, ZK-60, ZRE1, Z5Z, and M1 alloys. Application on M1 alloy is the least successful of these, and usually requires a high current density.

Adhesion of this coating has been measured by cementing metal discs to opposite sides of the plated panel and applying force at right angles to the panels in opposite directions at the same time. The average force required to pull the coating from the base metal was 2500 p.s.i.

Salt spray tests usually show no corrosion after 48 hours in a 20 per cent salt spray. After 120 hours, these panels, 4 by 6 inches in size, average 1 pit. This degree of protection is achieved without the use of post treatments. CR-22 specimens

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YOU CAN do it yourself EASILY
BUILD YOUR OWN OVENS OR HEATING UNITS
WITH driQuik INTERLOCKING INFRA-RED SECTIONS.
Sections completely wired, pre-engineered, with easy-to-handle structural parts for permanent or mobile ovens. If you prefer, we will build ovens or panels for your needs. No bulbs or sockets to burn out. Immune to damage by vibration, moisture.
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Showing how you can speed up production and reduce costs in heating, baking, curing, dehydrating, degreasing, and other applications with driQuick exclusive lava-coated sections. Only driQuick has Ceramic infra-red generators.
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MEET "LITTLE STEVE," A NEW, SPACE SAVING, LOW COST AUTOMATIC PLATING AND IMMERSION PROCESSING MACHINE

Here's What "Little Steve" Can Do

ELECTROPLATING
ANODIZING
BLACK JAPANNING
ENAMELING
ELECTROTYPE PLATING
PLASTIC COATINGS
HARD CHROME PLATING
PHOSPHATE COATINGS

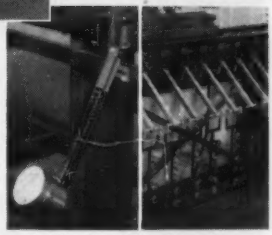
UP TO 40,000 PIECES PER DAY
540 RACKS PER HOUR

Yes, this new immersion processing machine by Stevens can process up to 40,000 pieces per day – and it has a variety of other uses too.

Ruggedly built "LITTLE STEVE," the hit of the 4th Industrial Finishing Exposition, can be obtained at a surprisingly low initial cost. It is ideal for large or small companies for it will fit many production cycles. It uses an arm as a rack or will take racks for small parts.

Being of small size it offers no floor space or load problems; involves low solution expense and means a small capital investment. It can be used easily as a laboratory testing machine.

For further information about "LITTLE STEVE" write for illustrated folder or call your local Stevens sales engineer



A single part can be placed on each carrier arm as shown in the illustration above or racks of numerous parts can be used

If a larger production model is desired the "Sgt. Steve" unit, using the same basic design, will provide the answer

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coupled with aluminum and steel are not corroded after 5 hours exposure to 20 per cent salt spray. After 24 hours exposure, aluminum couples are not corroded, but the coating in contact with steel couples is discolored.

CR-22 plated panels coated with one coat of zinc chromate primer, scribed and placed in a 20 per cent salt spray were still in such condition as to warrant continuation of the test after 1500 hours exposure in a 20 per cent salt spray. The coating requires 500 to 600 volts to cause dielectric breakdown. The CR-22 coating is hard enough to abrade copper and mild steel.

Routine paint systems have served very well when applied to HAE and Dow 17. There has been mentioned the possibility that HAE, being applied in an alkaline bath, would have residual alkali present in the coating. The data available at present seems to dispute this possibility. Harry Evanglides, inventor of the HAE process, has reported some interesting post treatments of an acid nature. He reports the best test results are obtained from the use of a bifluoride - bichromate sealing solution for 45 seconds, followed by drying at room temperature for 10 minutes, then heating for 2 minutes at 190 deg. F.

TUMBLE FINISHING COSTS
with
BMT
Multi-Barrel
SlideHoning
One BMT Multi-Barrel SlideHoning unit with 48" revolving disc and wide range of stationary mounted barrels does work of eleven or more conventional tumbling machines. Offers exceptional space and cost savings.
Angle mounting of barrels provides exclusive SlideHoning—a controlled combination of rotary, centrifugal, and end-to-end slide actions—that finishes metal or plastic parts normally considered impractical for conventional tumbling or done expensively by hand.
FOR TEST RUN: Send sample (up to 25 lbs.) and finished piece, prepaid. Process sheets furnished for cost comparison. No obligation on your part.
Write for FREE brochure "Modern Precision Tumbling."
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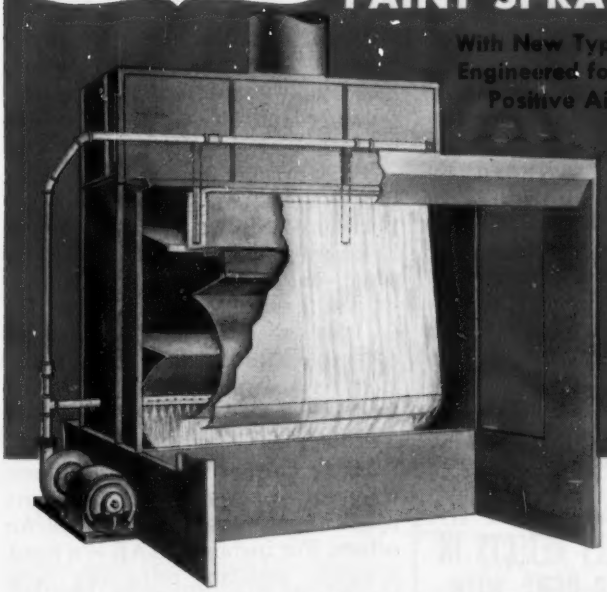
DESPATCH NEW WATER WASH PAINT SPRAY BOOTH

With New Type Baffle Chamber Engineered for 100% Efficiency Positive Air Cleaning Action



Entirely New! The new type baffle chamber provides a positive air cleaning action that prevents paint pigments, moisture and volatiles from reaching the exhaust stack or the outside of a building.

The new air scrubbing chamber features a specially-designed spray header mounted within two curved baffle plates. When water is pumped into the header it sprays [illegible] and strikes the baffle plates, building up a violent spray turbulence that removes practically every last particle of paint.

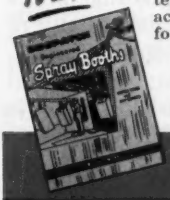
Lower Operating Cost by Actual Test!

NEW **Water curtain supply header** is located *outside* the plenum chamber for easy access. Vertical feeder lines do not interfere with tank adjustments.

NEW **Water Curtain Supply Tank** is completely adjustable. It provides a uniform, non-splashing flow of water that completely covers the curtain and prevents any paint accumulation.

NEW **Bleeder Line Keeps Header Clean** . . . keeps orifices from clogging. The new Bleeder line causes a continuous flow of water from the bottom of the header, preventing the settling of solids in the bottom of the pipe.

NEW **Fast-Action Removable Panels** permit easier maintenance. The entire interior of the booth is accessible in just 3 minutes, by removing just four fast-action clamps per section.



1. Will exhaust air containing not more than 5 grains of solid every 1000 cu. ft. of air handled.*
2. Will exhaust air containing not more than 50 parts per million solvent vapors.*
3. Will reduce down time for cleaning to a very minimum, thus increasing production.
4. Will prevent paint pigments, moisture and volatiles from reaching exhaust stack or outside of building.
5. Will thoroughly eliminate moisture from exhaust air, before it is exhausted.

Based on spraying rate of approx. 3 gal. per hour per ft. length of booth.

Write for Bulletin No. 66

Dept. C

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DESPATCH OVEN COMPANY

For more data circle **129** on Reader Service Card

Anodic coatings, being hard and abrasion resistant, have not proved too satisfactory in regard to particle impingement. Rubber and plastic coatings are now being investigated to improve this property.

One of the organic finishes which shows great promise is an Epon formulation. This coating, an epoxy resin formulation developed by Brooks & Perkins in cooperation with Boydell Bros. and Shell Chemical Co., has many desirable properties. Improvements in impact resistance, flexibility, and chemical resistance are promising. The high impact resistance of the Epon tends to reinforce the HAE coating. This material, after application, can be sanded or honed to give a smooth finish. Recent tests at the University of Detroit have shown it to be one of the few finishes to resist non-flammable hydraulic fluid at 160 deg. F. It has the property of improving resistance of galvanic couples under the same test conditions. Silicones are being tested under high temperature applications, but the results of these tests are not yet available.

The abrasion resistance of HAE can be further improved by the application of surface bonded dry-type lubricants. Both Electrofilm Graphite and Surf-Kote Molydisulfide extend the wear life of HAE coated parts under stress, abrasion and unfavorable conditions. These materials tend to prevent moving parts from seizing, galling, scuffiing and scoring.

HAE finishes, like most others, have excellent properties for many applications, but are not suitable for others. For instance, HAE is a hard, abrasion resistant refractory ceramic coating. No coating with this property has good elastic properties. Like all ceramic coatings, it has limitations where rough handling is a requirement, or where a sheet magnesium part is subjected to severe flexing. Magnesium panels of 0.025 inch thickness, HAE coated, can be bent as much as 160 degrees and straightened without apparent damage to the coating on the tension side. However, the coating on the compression side is substantially removed by this treatment.

Adapted for publication in PRODUCTS FINISHING from a paper presented at the Tenth Annual Meeting of the Magnesium Association.

ELIMINATE COSTLY REJECTS IN YOUR FINISHING DEPT. WITH DETROIT "TAC" RAGS
DETROIT HANDY "TAC" RAG
PICKS UP DUST LIKE A MAGNET
DETROIT "TAC" RAGS are an absolute necessity for cleaning any metal, wood or plastic surface before painting. Removes all dust, lint and sanding particles. Order today through your supplier.
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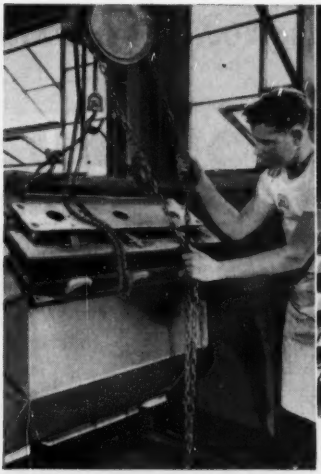
A 1955 ALMCO SUPERSHEEN AWARD WINNER



How Aircraft Parts Firm Saves $124,000 With One Supersheen Barrel

Every week this Almco SUPERSHEEN fixture-type barrel pays for itself at the Le Roy Machine Co., a New York manufacturer of aircraft and automotive parts. Production of finished compressor rotor disks for jet engines has been increased 450 percent at a cost-saving rate of $124,000 annually!

. . . Prior to its installation, the disks were deburred by file and wire brush—a tedious job that averaged 18 hours a piece. . .

Working with Le Roy, finishing engineers at Almco's Newark lab carefully determined the correct Supersheen media and compounds, barrel rpm, time cycle, water level and type of fixture required to obtain the fastest possible cutting, grinding and polishing action on these disks—yet meet rigid Air Force specifications.

Above you see the results: SUPERSHEEN finished, the disks are inspected under powerful magnifying glass; and critical break-edges are right down to A. F. specs.

Not only is the finish absolutely uniform, *but finishing time has been reduced from 18 hours to 4 hours per disk!*

You, too, can improve quality and make important savings in your finishing department with the SUPERSHEEN METHOD. So write today for further information and literature.

Division of Queen Stove Works, Inc.

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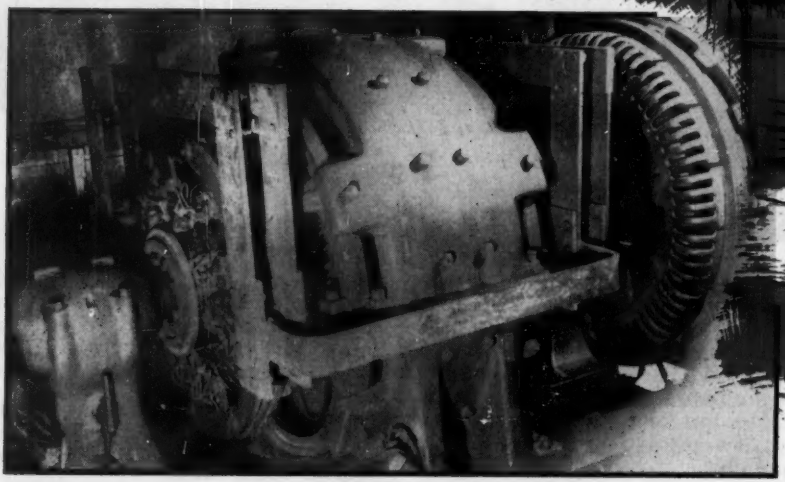
ELECTROLYTIC GENERATORS

EXAMPLE: COLOR ANODIZING

AT ALUMINUM FINISHING



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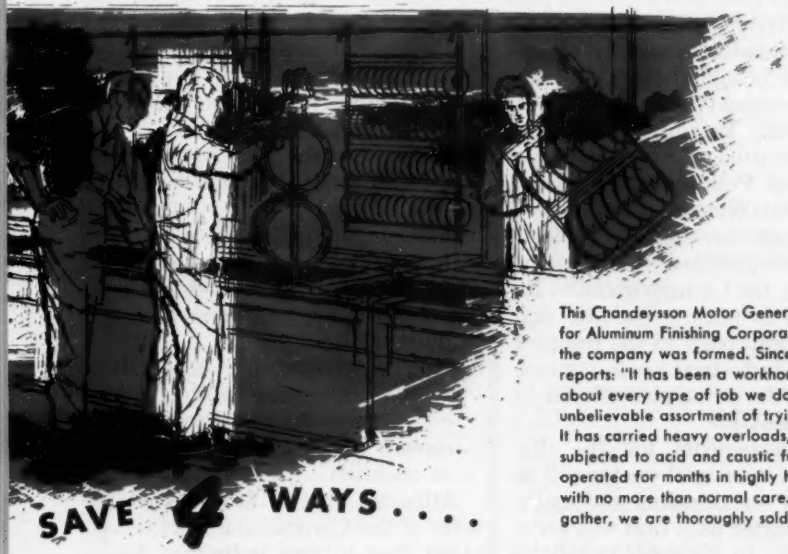

This Chandeysson Motor Generator went to work for Aluminum Finishing Corporation in 1936 when the company was formed. Since then the company reports: "It has been a workhorse . . . powering about every type of job we do under an unbelievable assortment of trying conditions. It has carried heavy overloads, it has been subjected to acid and caustic fumes, it has operated for months in highly humid atmosphere with no more than normal care. As you may gather, we are thoroughly sold on Chandeysson."

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precision-built for efficiency and built-in voltage regulation.

GET MORE OUT OF THE POWER YOU PAY FOR . . .
built-in high power factor at no extra cost.

BE SURE OF POWER WHEN YOU NEED IT MOST . . .
overload capacity as great as 50% momentarily and 25% sustained, without distress or damage.

ENJOY LIFETIME POWER DIVIDENDS . . .
sustained, lifetime overall constant efficiency as high as 85% does not decrease with age or overload.

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CHANDEYSSON ELECTRIC COMPANY
4082 Bingham Avenue, St. Louis 16, Mo.

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Company.....

Address.....

City..... *Zone*..... *State*.....

HA-46

A Report to the Metal Finishing Industry

By ALLEN M. REED
Chemist, Electric Auto-Lite Company
Member, Metal-Finishing Action Committee
Ohio River Valley Water Sanitation Commission

THE Ohio River Valley Water Sanitation Commission, composed of representatives of eight states, Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia, and West Virginia, adopted on April 6, 1955, a Statement of Policy and Procedure on Industrial Waste Control.

The policy as adopted reflects complete cooperation between the eight states, the Commission and industry and is both a realistic and reasonable approach to the complex problem of industrial waste control.

Some of the principles offered in this document are:

1. The requirements for the discharge of industrial wastes will be based on safeguarding and maintaining water uses that will serve the public in the most beneficial and reasonable manner.
2. The protection of water uses will be based on the evaluation of present uses and such uses which can be reasonably foreseen. Water uses which are to be considered, but not necessarily restricted to them, are: public and industrial supplies, maintenance of aquatic life, agriculture purposes, recreation and esthetic pursuits, navigation, power development and disposal of waste effluents.
3. Waste control requirements for the discharge of industrial wastes to a stream are to be applied at the point of use, not at the point of discharge.
4. Waste control requirements for the discharge of industrial wastes will be guided by a study of all local factors.
5. A reasonable period of time will be allowed for an industry to comply with any waste control requirement.
6. All requirements, other than basic requirements will be "tailored" to meet the conditions of the stream or section of the stream in question.

Although this is a policy statement of the Commission, it is recognized that in any industrial waste problem the appropriate state agency should be contacted, and it will administer the regulatory controls in accordance with standard procedures.

Along with this policy the Commission has adopted basic industrial waste requirements requiring that industrial wastes be treated or otherwise modified prior to discharge so as to maintain the following conditions in the receiving waters.

1. Freedom from anything that will

H-VW-M RECTIFIERS

GERMANIUM and SELENIUM

For low voltage power rectification, H-VW-M's complete line of rectifiers answers your every requirement! High quality, top efficiency and unusual adaptability are only part of their product story; other outstanding advantages include economical operation, low maintenance, high power factor and low ripple.

Whether it's 6, 9 or even 48 volt output you require . . . whether your choice, based on economic considerations, calls for a selenium or the newly-developed germanium type of rectifier . . . you'll find an H-VW-M unit that will give outstanding service in providing a dependable low-voltage current supply to electrolytic processes. The types of voltage controls providing either smooth stepless or small incremental changes in output from zero to rated voltage make it an easy matter to obtain uniform deposits. Since H-VW-M supplies *both* rectifier types (and generators, too), you can be sure of an unbiased recommendation—the *right* recommendation for your installation. Check the features of these two advanced H-VW-M types – and see how an H-VW-M Rectifier fits into your power picture.

NEW H-VW-M GERMANIUM RECTIFIERS

Designed for 24-hour-a-day service at full capacity, H-VW-M Germanium Rectifiers have numerous voltage ratings from 12 to 48 volts for standard units and an even wider range for special units. Current outputs are from 1000 amperes up. Principal features of the germanium junction are its very low voltage drop, high inverse voltage rating, and very small reverse current.

- **Outstanding efficiency and voltage regulation** – Greater than 90% efficiencies at full load. Voltage regulation better than ± 5% from no load to full load without special additional controls.
- **Several types of controls** – Single wheel manual tap switch, motor-driven tap switch, or motor-operated, oil-immersed, continuously variable auto-transformer controls – whichever fits the plating requirement most economically.
- **Cooling** – Simple forced air cooling by sturdy updraft fan mounted in top.
- **Electrical protection** – Safeguarded from overloads and DC line shorts by replaceable link-type fuses in the output circuit; thermal overload switch and magnetic contactor complete the protection.

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H-VW-M SELENIUM RECTIFIERS

For voltage output requirements ranging from 6 to 48 volts, from 15 amperes and up – bench, self-contained, or remote controlled. Economical, efficient, dependable, and simple to operate.

- **Greater effective selenium plate area per ampere** – Limits rise in stack temperature to insure long life.
- **Electrically balanced selenium plates** – Only electrically identical plates are assembled into same stack for greater efficiency and durability
- **Corrosion protection** – Special fungus and moisture proof coating guards against deterioration of stacks and transformers.
- **Adaptability** – Auto-transformer in regular units can be used for either 220 or 440 volt input.
- **Electrical protection** – Complete overcurrent and undercurrent protection. Thermostats guard against overheating.
- **Forced air cooling** – Same efficient cooling system as in germanium rectifier cools both selenium stacks and transformers, adds safety.

Write for Bulletin ER-107

There's an H-VW-M unit to cover *every* DC low-voltage requirement. One more reason why – when it's a question of equipment or supplies – the metal finishing industry always thinks of H-VW-M first!

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Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

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settle to form putrescent or otherwise objectionable sludge deposits which interfere with reasonable water uses.

2. Freedom from floating debris, scum and other floating materials in amounts sufficient to be unsightly or deleterious.
3. Freedom from materials producing color or odor in such degree as to create a nuisance.

This review of the Statement of Policy and Procedure on Industrial Waste Control has been published by the Metal-Finishing Industry Committee in accordance with its policy of making available the accomplishments and findings of the Commission to all metal finishing establishments within the Ohio River Basin.

Copies of this Policy or additional information relative to the Commission program may be obtained by addressing your request to: *Ohio River Valley Water Sanitation Commission, 414 Walnut St., Cincinnati 2, Ohio.*

★ ★ ★

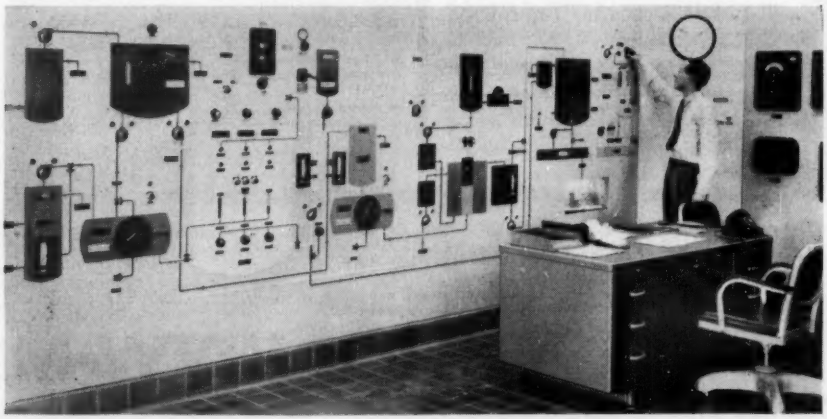
"THE SPRAY'S THE THING" is the title of a film on aerosol products released by the **duPont Company**, "Kinetic" Chemicals Dept. This film describes the development of aerosol products, the way in which they operate, and the many existing and potential uses for the self-spraying packages.

This movie, filmed in color, is available on a free loan or purchase basis by writing E. I. du Pont de Nemours & Co., 6529 Nemours Bldg., Wilmington, Del.

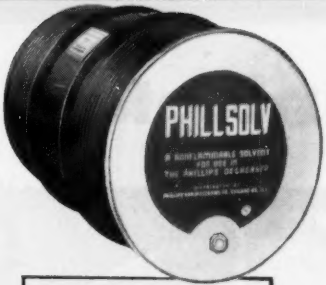
★ ★ ★ ★ ★

Waste Disposal Control

FACED with a difficult waste disposal problem, Oneida, Ltd., a silver plating firm of Oneida, N. Y., installed a new waste treatment and silver recovery plant featuring the graphic control panel shown. The panel was built by The Foxboro Company of Foxboro, Mass., and provides complete, centralized control of the separate stages involved in neutralizing plating contaminants such as cleaning chemicals, plating metals and cyanide solutions for safe discharge into waterways.



WITH PHILLSOLV



✓ YOU USE LESS SOLVENT

✓ YOU GET FASTER CLEANING CYCLES

✓ YOU GET SAFER OPERATIONS

SOLVENT CHECK LIST	YES	NO
FAST DRYOFF OF PARTS?	☐	☐
COMPLETE CLEANING?	☐	☐
MEET SAFETY REQUIREMENTS?	☐	☐
PREVENTS CORROSION?	☐	☐
MINIMUM ODOR?	☐	☐
LOW VAPOR LOSS TO ATMOSPHERE?	☐	☐

CHANGE "NO" ANSWERS TO "YES" with PHILLSOLV

These are real . . . tangible benefits that come as a result of *PHILLSOLV'S* more positive cleaning properties. *PHILLSOLV* has a high boiling point which causes longer condensation of vapor on metal surface; 35% more washing action. *PHILLSOLV* vapor has a higher density. There's less solvent dragout, less danger from fumes. Flammability rating on *PHILLSOLV* is zero so the fire hazard is eliminated.

And, best of all, PHILLSOLV costs you less to use because of these benefits. It pays off in the form of higher production rates, thus lower unit cleaning costs. It's good business to clean with *PHILLSOLV!*

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OF ENGINEERED VAPOR DEGREASERS AND POWER WASHERS

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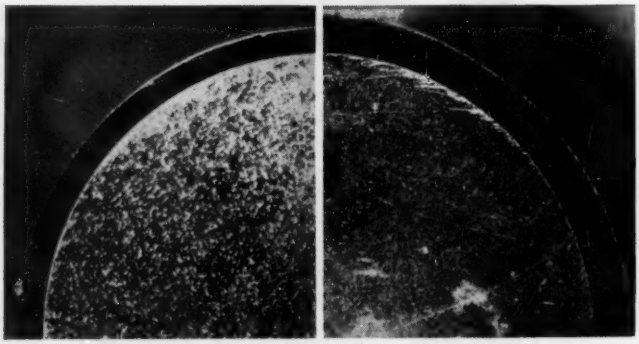
News about UNICHROME Trade Mark

Chromium platers



Improved cathode efficiency cuts power need, ups output, saves time. Evidence of higher cathode efficiency of SRHS: Macrograph of steel rod section at left shows 0.016" of chromium deposited in 16 hours in ordinary solution. Identical rod section at right, plated in SRHS bath under identical conditions, got 0.0225" deposit — 40% more.

Here's undivided responsibility for good plating results

Unichrome Copper, Bright Nickel and SRHS Chromium represent the first complete, *matched* set of plating processes.

Platers can now *unify* their operation, get undivided responsibility for prompt technical help.

Equally important are the extra opportunities for improving output and cutting producion costs. For example:

A HELP IN PRODUCTION

Unichrome Pyrophosphate Copper enables platers to get the deposit to suit their requirements exactly. With one addition agent, a lustrous deposit is produced which can eliminate buffing. With another, a satin finish is produced which is ideal for buffing—permitting buffing of the free flowing copper rather than the steel or nickel.

With Unichrome Bright Nickel, deposits are obtained that are more receptive to chromium and avoid passivity problems. This stable bath also shows greater tolerance for impurities which means reduced downtime for purification.

Send for bulletins.

UNITED CHROMIUM DIVISION

METAL AND THERMIT CORPORATION

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East Chicago, Ind. • El Segundo, Calif. • In Canada: United Chromium Limited, Toronto 1, Ont.

For more data circle **135** on Reader Service Card

make big gains

More progress reported in plants using Unichrome SRHS® Chromium Plating Solutions

The working advantages of SRHS Chromium Solutions show up in different ways. Here are a number of cases to illustrate.

MATERIALS CONSUMPTION CUT

In one automotive plant, the SRHS bath replaced the ordinary chromium solution in a full automatic, resulting in a decrease of salts consumption from 500 pounds down to 300 pounds daily – saving about $3000 a year on salts alone. This saving was due partly to lower dragout loss from the more dilute solution and to diminished spray loss from the more efficient SRHS solution.

POWER CONSUMPTION CUT

At another plant, SRHS halved power consumption. 4-rack loads of bumper guards now get coverage in SRHS with 2500 amperes, whereas this same load needed 5000 amperes in the ordinary chromium solution. Existing power supplies can gain additional work capacity with Unichrome SRHS Solutions, and platers can save on power, too.

PRODUCTION STEPPED UP

Because of the increased plating speed of SRHS Solutions, work took only 2½ hours in one shop, where 3½ hours had previously been needed in the ordinary solution. Taking advantage also of higher efficiency and wider bright plate range, some plants have put through 30 to 66% more work per *cycle* with SRHS.

More information on these and other benefits derived from Unichrome SRHS Solutions can be obtained from the nearest office of United Chromium. ®*Trade Mark*

Spotlighting FINISHING Progress

Electrodeposition of the Platinum Metals

INCLUDED IN THE GROUP of six platinum metals are materials with a unique combination of electrical and physical properties and outstanding resistance to chemical attack. Another characteristic of this group is the scarcity and high cost of the metals. As electroplated coatings, however, so little of the metal is used that its high cost may not be prohibitive for many applications in which the properties of these materials are desired for technical reasons.

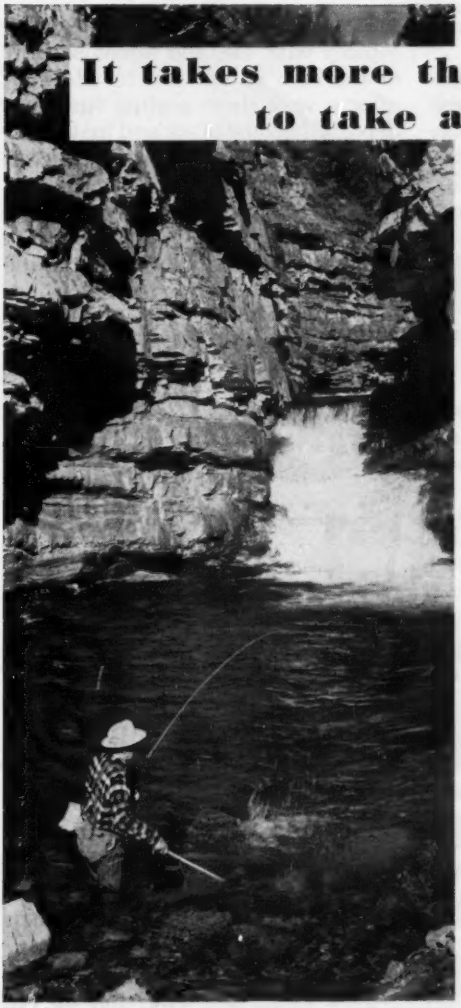
In an article by E. H. Laister in METAL INDUSTRY, *85*, 427, 469 (1954), it is stated that all six of the platinum metals can be electrodeposited, but thus far there has been no commercial application of iridium, ruthenium, or osmium plating. The plating of platinum, rhodium, and palladium, however, has had considerable commercial application in the last 25 years, and it is with the electrodeposition of these three metals that the article is concerned.

Platinum: One of the earliest solutions which was used for the electrodeposition of plati-

Dr. Seymour Senderoff
Supervisory Chemist,
Electrodeposition Section
National Bureau of Standards

A Monthly Digest of Current Technical Progress Indicating Significant Trends and Developments in the Finishing Industry

It takes more than a good fly to take a trout



Even the costliest fishing gear, the finest rod, the best reel and the prettiest fly can't assure catching a wily trout. It's the experience behind these accessories, that fills the creel.

There's no substitute for "Know-How" and that's particularly true in adapting metal treating chemicals to established production. It can't be gotten out of books, through black magic or out of a crystal ball. Only years of active contact, with actual manufacturing procedures, can be depended upon for satisfactory solutions of the metal protecting problems constantly confronting manufacturers.

ACP offers ideal products for removing and preventing rust on metal, chemicals to bond paint to steel, zinc, and aluminum, and pickling acid inhibitors. In addition, ACP furnishes a free service of an organization of technical experts with over 40 years' experience in solving metal preservation problems for the largest as well as the smallest operation.

Rely on service backed by experience. You are obligated in no way by consulting our technical staff.

Write or call for further information on ACP chemicals for metal protection.

Since 1914, Pioneering Research and Development in Metal Protection

AMERICAN CHEMICAL PAINT COMPANY

CHEMICALS ACP PROCESSES

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DETROIT. MICH. **NILES, CALIF.** **WINDSOR, ONT.**

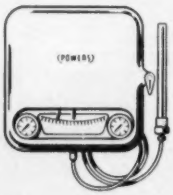
For more data circle **136** on Reader Service Card

num was one which contained a complex platinum compound obtained by boiling chloroplatinic acid with a solution of sodium and ammonium phosphates. The resulting solution is quite stable. It must be operated near the boiling point and at high current density in order to obtain deposits of platinum. Further, the current efficiency is low, falls off rapidly with use, and replenishment of the bath is difficult. In addition, after a very short plating time, the deposits become black and matte and must be polished before additional plate can be applied. The bath is still used in special applications because of the strongly adherent plate which is obtained from it, and the very active electrode surface of high effective area which characterizes the black matte plates.

The author states that the bath based on sodium hexahydroxy platinate, $[Na_2 Pt (OH)_6 \cdot 2H_2O]$, is probably the most satisfactory solution and the one most commonly used today. If sodium chloroplatinate is boiled with sodium hydroxide, the chloro groups are replaced by hydroxy groups and the hydroxy salt can be precipitated by addition of alcohol. The plating bath is prepared by dissolving this salt in hot water containing 0.5 to 1 per cent of so-

Better Metal Finishing . . AT LOWER COST!

Take Chromium Plating, for example. You can save on costly rejects and replates — assure maximum production rates — by holding your plating solutions at a constant uniform temperature. Powers Temperature Controls often repay their cost 3 to 6 times yearly by reducing plating expenses.



POWERS Series 100 TEMPERATURE INDICATING CONTROLLER

In CHROMIUM Plating:

Too HIGH a temperature can result in:	*Too LOW a temperature can result in:*
1. Burnt deposits	1. A slow rate of plating
2. Frosty deposits	2. Milky deposits
3. A decrease in cathode efficiency	3. A decrease in tensile strength
4. A loss in throwing power	4. A decrease in deposit density
5. A soft deposit	5. Cracked deposits
	6. Dark deposits

(c45)

Install POWERS AUTOMATIC TEMPERATURE CONTROL

For All Metal Finishing Processes

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Over 60 Years of Automatic Temperature and Humidity Control

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Peel booths clean in minutes with firesafe

"LIQUID ENVELOPE"

the original, firesafe, strippable
SPRAY-BOOTH COATING

Spray on in minutes. When overspray accumulates, peel off in great big pieces. In minutes your booth is clean again.

Works like magic. Eliminates overtime clean-up work. Promotes firesafety. "Liquid Envelope" film will not burn or support combustion. Used over 10 years coast-to-coast.

Order 5-gallon test-sample at drum-lot price. See for yourself the savings you make.

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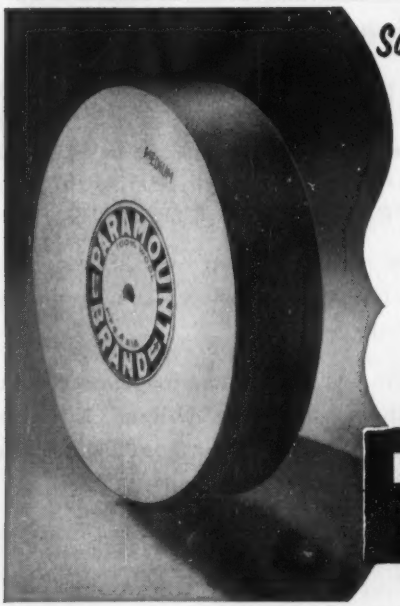
dium hydroxide. A maximum concentration of platinum of about 20 g./l. may thus be obtained but only about 10 g./l. is usually used in the plating bath. The following are the operating conditions:

Solution: $Na_2Pt(OH)_6$ ....20 g./l.
Free NaOH .....10 g./l.
Pt metal equivalent. 10 g./l. (approximate)
Current Density .....8 a.s.f.
Cathode Efficiency. .95-100 per cent
Deposition Rate .30 mg/amp-min, or 25 microns (0.001 inch) in 4 hours

Nickel or platinum anodes and a nickel or nickel-plated copper tank are used.

The following operating procedures are recommended: after electrolytic alkaline cleaning and thorough rinsing the work is immersed in the platinum bath, allowed to reach the temperature of the solution, and a low current applied. The current is then slowly raised to the operating value. If the current is too high, hydrogen evolution will occur and this will inhibit platinum deposition even if the current is later reduced. If hydrogen evolution begins, it is suggested that the current be turned off for a while and then started up again as above. If hydrogen evolution persists, the author suggests that the work be removed from the solution, dipped in hydrochloric acid, rinsed, and plating resumed as above. The alkalinity of the bath is maintained by daily additions of caustic soda, and the metal content by addition of the sodium



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SET-UP WHEELS

... the felt wheel by *Paramount*
... the abrasive grain by your favorite manufacturer

Whether you work with metals as soft as aluminum or as hard as steel, it's 20 to 1 your polishing applications call for abrasive grains in the 120-240 range. It's here that eye-appealing finishes are born — and it's the very range where Paramount Felt Wheels set up with the proper abrasive can do the most for you — both quality- and cost-wise.

Discover for yourself why hundreds of manufacturers call Paramount Felt Wheels the versatile workhorses of their polishing rooms — call your supply house today.

BACON FELT COMPANY
447 WEST WATER STREET • TAUNTON • MASSACHUSETTS
Established 1825 "Felt Does It Better"

New 12-page catalog shows ways you can profit with felt write for your copy today.

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BASEMENT BARGAIN for Paint Finishing

NOW P-D ENGINEERING— CONSERVES floor space... UTILIZES basement areas for disposition of paint laden air . . . RETURNS washed and filtered air.

This new installation of a Peters-Dalton Hydro-Whirl Finishing System in the plant of a major manufacturer of milling machines has overcome many serious problems. In this case, dirty, inefficient, and dangerous conditions otherwise thought insoluble have been overcome. The machines made here are of huge size (castings weighing up to 90,000 lbs.) and handling operations must necessarily be held to a minimum. Complete finishing operations now can be carried on by any number of men — working on all sides of the machines—in unpolluted air. The Finishing System engineered and built by Peter-Dalton permits the placing of these machines in a room fitted with floor gratings. The paint laden air (over 150,000 CFM) is drawn down through these gratings to a lower level and thence through the P-D washer sections, where it is "knocked down" by the Hydro-Whirl scrubbing action which returns it washed and filtered to the finishing room. It is a finishing system that not only solves the problems of a particular manufacturer but is so excellent that it meets insurance company standards and code requirements of most states for the return of cleansed air to a room.

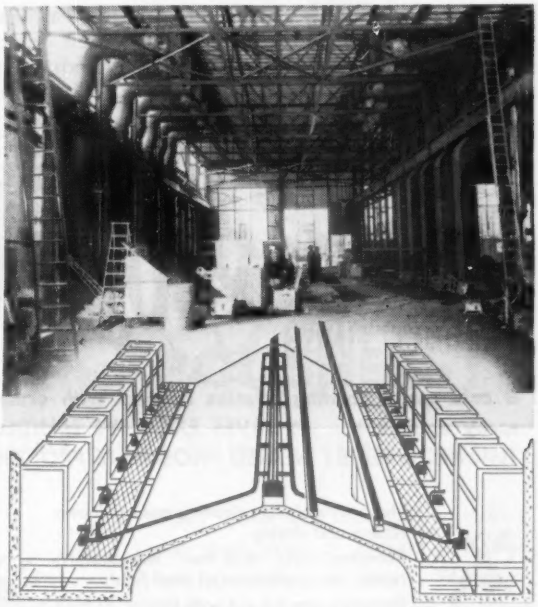

Photo (while under construction) and Drawing of P-D Finishing System above illustrate (1) the complete freedom of movement without loss of any floor space, and (2) the elimination of expenditure for air make-up because of cleansed air-return feature of this installation.

Finishing Systems by Peters-Dalton are designed for the job — to do the job. Whatever your needs . . . from cabinet size to installations comparable to the one illustrated here . . . depend upon P-D designing and engineering. If you want to modernize, economize, increase production and efficiency, we'll be glad to tell you more. Just write, wire or phone.

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hexahydroxy platinate. Carbonate build-up lowers the maximum usable current density. When the carbonate concentration reaches objectionable values, it is suggested that acetic acid be added to the bath to precipitate the platinum salt which is then recovered and used to prepare a new solution. Contamination of the bath, particularly by cyanide, must be carefully avoided. Under these conditions excellent deposits up to 25 microns are said to be obtainable. After a few minutes of plating the deposit becomes milky, but is readily buffed bright with any of the usual chrome buffing compounds.

Palladium: Palladium has been used less than either platinum or rhodium, probably because it is less resistant to chemical attack and to oxidation at elevated temperatures. It is considerably less costly, however, and the author believes it will probably find increasing use in applications under comparatively moderate conditions. Baths from which palladium can be electroplated are based on the following complex salts of palladium (1) diamino- dinitrito- (2) dicyano- diamino palladous nitrate. Compounds analogous to the first three have also been proposed for depositing platinum. Better results are obtained with each

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METAL FINISHING SPECIALISTS
For more data circle 141 on Reader Service Card

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Direct drive type with wheels mounted directly on motor spindle. Is most economical, however, limited to speeds of 1800 or 3600 R.P.M. (Other speeds to special order). Made in many types and sizes from ¼ H.P. to 7½ H.P. capacity.

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for palladium plating than for platinum plating, and in fact, the phosphate-type palladium bath works quite well. The author states, however, that it is the fourth type which is most widely used at present. It is said to produce hard, coherent, nonporous plates which, under suitable conditions are bright. The operating conditions follow:

Solution: 28 g./l. tetramino — palladous nitrate (10 g./l. palladium metal)
Temperature: 140-176 deg. F.
Current Density: 3-30 a.s.f.
Cathode Efficiency: Approximately 100 per cent
Deposition Rate: 33 mg./amp.-min., or 25 microns (0.001 inch) in 4½ hours at 3.2 a.s.f.

High temperature, high concentration, and high current density tend to increase brightness of the deposit but they also increase stress so that cracking may occur in thick deposits prepared under these conditions. Some difficulties with adhesion are encountered, particularly when plating on nickel, and a cyanide-copper strike is therefore recommended.

Rhodium: At the present time there are only two types of baths from which rhodium is deposited, the phosphate and the sulfate complexes. The author believes that for thin coatings there may be some controversy as to which of these is superior, but for depositing coatings from 0.001 to 0.002 inch in thickness, the sulfate solution has been demonstrated to be more desirable. Unfortunately, it is difficult to prepare the complex rhodium sulfate salt and as a result rhodium solutions are pre-

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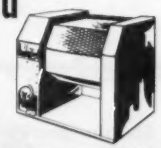
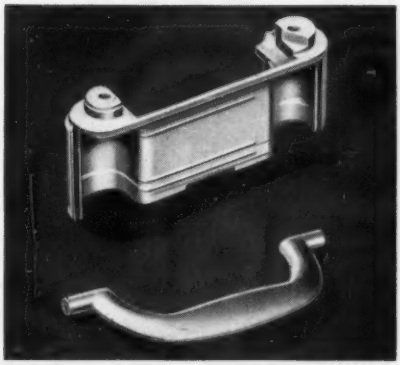
New Honite "Micro Cut" Compound gives super smooth finishes on zinc and aluminum die castings!





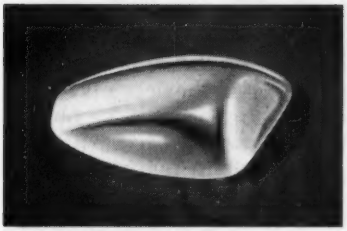


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Table I
PROPERTIES OF THE PLATINUM METALS

	Platinum	Palladium	Rhodium
Specific gravity	21.5	11.9	12.4
Melting point, ° (deg. F.)	3184	2793	3528
Electrical resistivity (microhms/cm³)	10.5	10.7	4.9
Vickers hardness (cast and annealed)	40	40	100
Vickers hardness (electroplated)	400	300	800
Chemical attack by	Aqua regia	nitric acid	Fusion methods or hot fuming sulfuric acid
Oxidation in air at (approx.) deg. F.	none	360	1080
White light reflectivity (45 degree incidence)	—	—	78%

pared from proprietary concentrates. Addition of water to the concentrate to make a bath containing about 4 g./l. of rhodium metal is all that need usually be done to prepare a plating solution from the proprietary concentrates. The solution is operated at 127 deg. F. and at a current density of 10 a.s.f. The deposition rate at a current efficiency of 47 per cent under these conditions is 10 mg./amp.-min. The author believes that carbon and lead anodes are undesirable, the former because they disintegrate, and the latter because they are slowly attacked, and that platinum anodes should be used if at all possible. The hydrogen evolution which accompanies rhodium deposition is said to cause difficulties at times by inducing pitting, particularly when plating to thickness greater than 10 microns. Also, the hydrogen tends to reduce the solution in the vicinity of insulating masks which become coated with rhodium as a result. The plating rate of 5 microns/hour for the bath described above can be increased considerably by increasing the concentration and temperature of operation, but the author does not recommend thus speeding up the deposition, because the deposits so produced are softer than those obtained from the standard bath.

The properties of platinum, palladium, and rhodium which are most important to their uses as electrodeposited coatings are listed in Table I. The most important uses are said to be in the electrical field as contacts, slip-rings and similar applications where low contact resistance is required. Although the metals themselves are not particularly good electrical conductors, the absence of oxide films from their surface frequently results in their having lower contact resistance than metals with better conductivity but greater tendency to tarnish. Platinum and rhodium plated contacts are particularly desirable on emergency and standby equipment which may not be used for long periods of time, but which

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Photograph courtesy of Supreme Steel Products, Inc. Mesapeth, L. I., New York

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must be in operating condition whenever they are needed.

Other important uses have been for coatings on chemical equipment and on silverware and light reflectors, uses which depend on the chemical inertness and tarnish-resistance of the platinum metals. It should be noted that the comparatively thin coatings which are usually used can be expected to be porous to a greater or lesser degree. Therefore the undercoating which is used must be carefully chosen in accord with the expected environment in which the part will be used. For instance, a copper part plated with nickel and rhodium failed very rapidly on exposures to hydrochloric acid fumes, but when silver was used as an undercoat, it stood up very well. On exposure to hydrogen sulfide, however, parts having a nickel undercoat were superior to those in which silver was used. In applications where high temperatures are encountered such as in reflectors for arc - lamps, nickel is recommended as the desirable undercoat.

The author states in conclusion that the increasing complexity of modern technical and automatic equipment is undoubtedly leading to increasing use of electrodeposited platinum metals.

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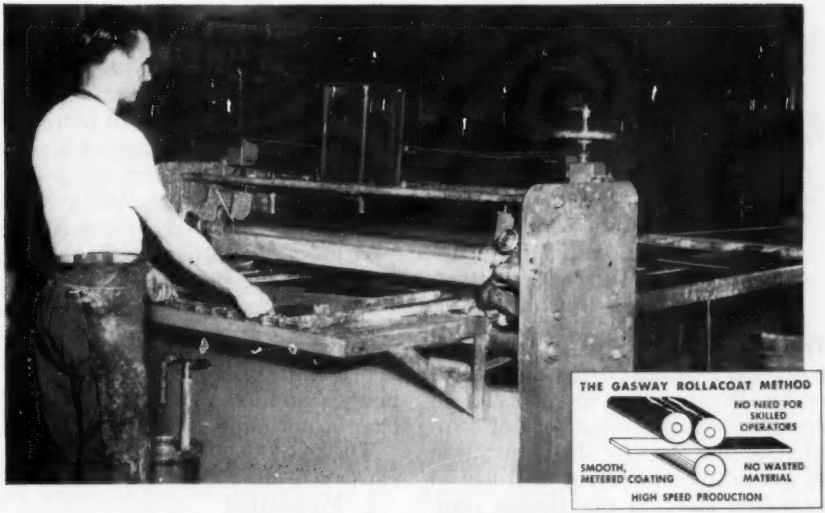

More efficient painting method steps up production and gives 98% enamel coverage for Scioto Sign Company

WITH its Gasway Model 32B Rollacoater, Scioto Sign Company of Kenton, Ohio, reports higher production and an improved paint job due to Gasway's *automatically metered finish which deposits 98% of paint solids directly on the material.* No skilled operators are required to get a uniform film thickness and this Rollacoater handles a range of steel and aluminum panels of equal thickness from 32 square inches to 32 square feet, *without any machine adjustments!*

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The Gasway Rollacoater is a complete coating tool all by itself. No elaborate spray booths or compressors are needed. No paint is lost. Gasway's 98% coverage means you can coat 800 square feet of surface with a one mil film, for every gallon of paint containing 50% solids. No other method can compare.

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No matter what kind of material, there's a Gasway Rollacoater that will coat it . . . on one or both sides. Aluminum, steel, plywood, fibre-board, cardboard, leather, wood, asbestos and other semi-rigid materials are being coated successfully in thicknesses from 35 gauge to 3 inches.

VARIETY OF COATINGS APPLIED

Lacquers, enamels, varnishes, drawing compounds, adhesives, sealers, stains, oils, compounds of many sorts can be applied. For instance, a protective sealer is now being applied to plywood to protect it in storage.

WIDE APPLICATION IN INDUSTRY

Manufacturers of awnings, venetian blinds, trailers, siding, pre-fab, displays, signs, furniture, blinds, bumpers, air conditioners, roofing, baseboard heating, shower stalls, automotive panels, shelving and other goods are getting lower costs, better products. *And don't forget, panels or strip don't have to remain flat after coating, either. Roll forming or drawing after painting is the newest wrinkle in cost-cutting manufacture. It'll pay you to investigate.*

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Hot Dip Aluminum Coating Iron and Steel Wire

By BERNARD S. WESTERMAN

THE RESISTANCE to atmospheric corrosion and heat oxidation afforded by aluminum has served as an incentive for the development of commercial processes for the application of protective aluminum coatings to iron and steel. A practicable commercial process for the coating of sheet and strip has been developed within the past several years. Also, batch processes have been developed for coating irregularly shaped articles such as castings, forgings and stampings of ferrous metals and alloys. More recently, attention has been centered on the development of practical processes for the continuous hot dip application of aluminum to iron and steel wire.

Some hot dip aluminum coating processes utilize controlled gaseous atmospheres to protect the cleaned metal surface from oxidation until the article is immersed in the molten aluminum bath; others utilize the strong fluxing action of molten salts either as separate baths or as layers of molten flux underneath or over the molten aluminum.

The Page Steel and Wire Division, American Chain & Cable Company, Inc., has developed, and has patents on, a continuous hot dip aluminum coating process (Fig. 1) for iron and steel wire based on the fluxing action of complex salt compounds applied to the wire surface from a hot aqueous solution.

The ACCO aluminizing process consists of the following:

1. Preheating.
2. Cleaning and pickling in hot acid solutions.
3. Rinsing in hot water.
4. Applying flux by immersion of wire in a hot aqueous salt solution.
5. Immersing in molten aluminum bath, the wire being withdrawn vertically to assure the uniformity of the applied aluminum coating.

Wire surface cleanliness is of paramount importance in the application of continuous hot dipped aluminum coatings. Heat imparted to the wire during pretreatment accelerates subsequent cleaning and pickling in acid solutions. Pretreating temperatures are based on the wire size, speed of travel and length of furnace. It is also necessary to adjust the furnace so as to avoid adverse effects on the physical properties of the wire so treated.

Immersion of the preheated wire in acid cleaning and pickling solutions permits the rapid removal of all

oxidized surface contaminants including the remnants of lime if utilized for drawing. Any surface soil permitted to remain on the wire imposes a barrier to the intimate contact of the molten aluminum with the wire surface, thus preventing the application of continuous coating. Best pickling results have been obtained with hot hydrochloric acid solutions, the temperature and concentration of which must be suited to the wire size, speed of travel, length of acid pickling tanks and nature of the wire surface.

Following acid cleaning and pickling, the wire is rinsed thoroughly in hot water to assure the removal of iron salts and dirt carried on the surface of the wire.

The flux utilized in the ACCO aluminizing process is a hot aqueous solution of zirconium or titanium fluorides, or complex zirconium or titanium fluoride compounds with an alkali metal such as sodium or potassium. The temperature and concentration of the flux solution may be varied to suit the diameter and speed of the wire. It is desirable to maintain the temperature of the flux bath high enough to dry the flux on the wire as it passes through air after leaving the flux bath. The flux coating on the wire must be quite dry before the wire enters the bath of molten aluminum, so as to avoid serious agitation of the aluminum at the point of entry with accompanying accelerated formation of aluminum oxide skimmings. Provision is made for the application of flux in a uniform film on the wire.

The fluxed wire enters the molten aluminum bath, passes under a suitable sinker, and leaves the bath vertically to assure uniformity of coating. The time during which the wire remains immersed in the molten aluminum, which is regulated by the immersion length and the speed of travel, affects the thickness of the aluminum-iron alloy layer formed. The wire size and speed of travel affect significantly the total thickness or weight of the applied coating.

The molten metal is contained in a low frequency electric induction furnace. Relatively high purity alumina brick is the refractory used for the furnace lining.

Commercially pure aluminum or aluminum to which alloys have been added may be used. A molten bath

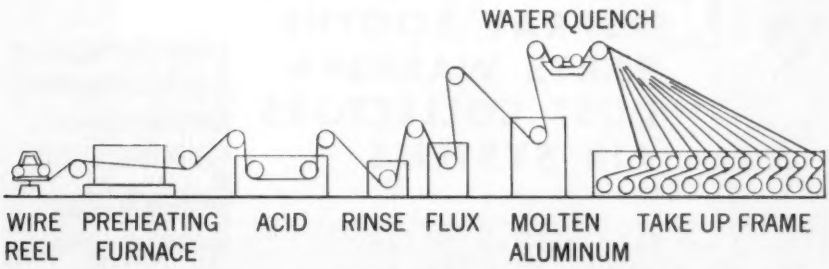

Fig. 1—Schematic layout showing the various elements of an aluminum coating unit.

of commercially pure aluminum may be maintained at a temperature of 1250 to 1400 deg. F. for the application of satisfactory coatings; the addition of some alloys permits a reduction in the operating temperature consistent with the amount added.

Coating ductility and adherence provide the most troublesome problems in the production of most commercially acceptable hot dipped metal coatings on iron and steel wire. Ductility is appraised by the ability of the coating to withstand elongation without cracking; adherence is the ability of the coating to withstand bending, wrapping, and other forming operations without peeling or flaking.

Important factors controlling the ductility and adherence of aluminum coatings on iron and steel wire are as follows:

1. Thickness and hardness of the alloy layer.
2. Chemistry of the molten bath as related to the applied coating.
3. Coating weight and thickness, smoothness or regularity.
4. Wire size.
5. Grain size and structure of the coating at room temperature.

Hot dipped aluminum coatings applied to iron and steel wire are duplex in nature, consisting of an alloy layer resulting from a diffusion process and an outermost layer having a chemical composition similar to that of the bath; the latter layer is characterized by a cast structure. The al-

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BULLETIN FAC-101

H-VW-M Full Automatic Conveyors

an album of progress in mass-production finishing . . . electroplating, metal cleaning, anodizing, phosphating, stress relief and pickling.

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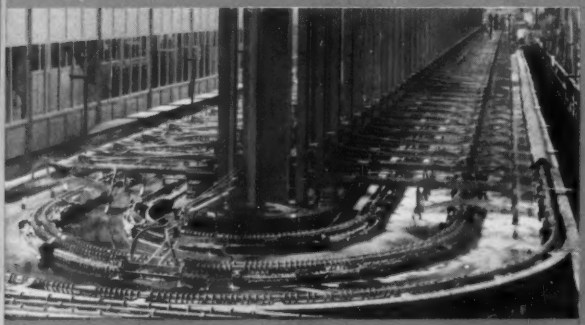
SINCE 1820

There's an H-VW-M full automatic conveyor for every production application requiring automatic cycling of individual treatments through tanks including:

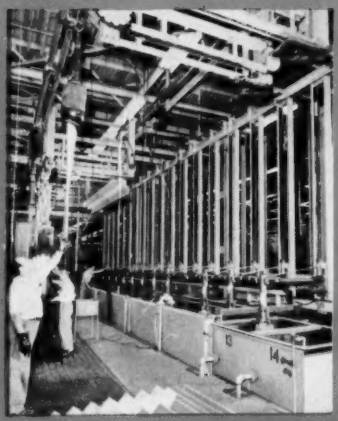
electroplating
metal cleaning
anodizing
phosphating
stress relief
and pickling

The requirements of the inorganic metal finishing industry place a premium on the operational flexibility, broad range of application, and the engineered precision of its equipment. Recognizing this, H-VW-M design engineers have placed special emphasis on incorporation of all of these features—in maximum degree—in H-VW-M full-automatic metal processing conveyors.

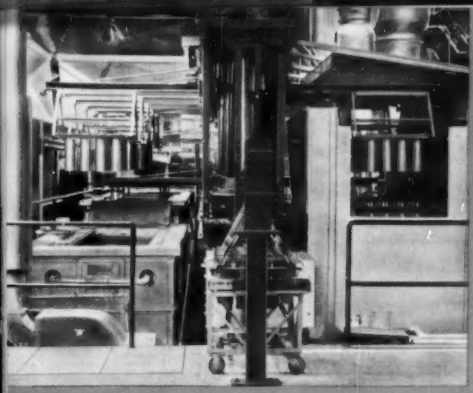
Check the following pictures and their brief story-captions carefully, for they have been particularly selected to indicate the scope of application of H-VW-M Full Automatic Conveyors. *Right here* are the performance-proved, engineered answers to a host of common problems in volume metal finishing.



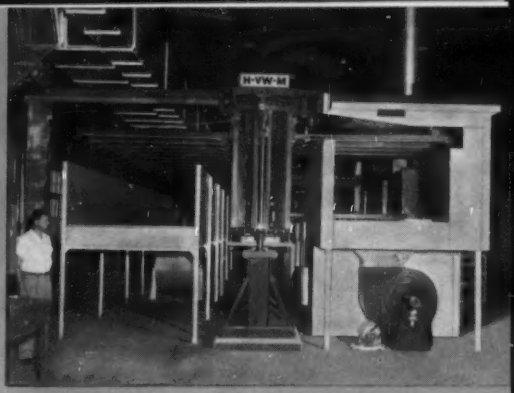
from the largest to the smallest . . . in processing parts and automotive steel stampings this full automatic plating conveyor takes 'em all. This one machine has an operating solution capacity of 84,000 gallons—one of the world's largest for a single unit.



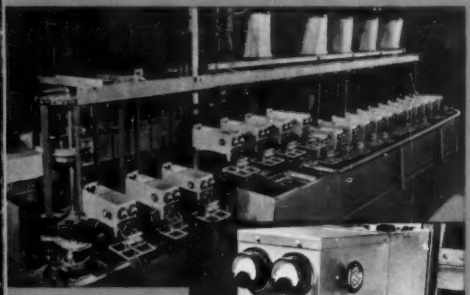
highest lift . . . for a return type conveyor, raising 300-lb. steel propeller blades a full ten feet during zinc plating cycle. To obtain correct blade balance and heavy zinc deposit, the blade transfers automatically to auxiliary conveyor chain for required recycling and automatic reload.

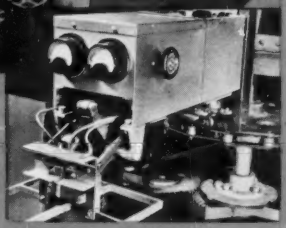


automation in stress relief . . . as well as other treatments can be accomplished through intermittent cycling, as with these steel shell cases which move between oil bath (left) and hot-air blast dryer. *Automatic loading* from and into the same truck, shown in foreground.

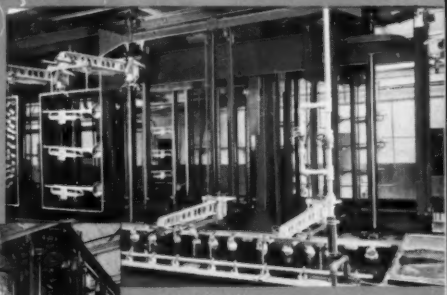


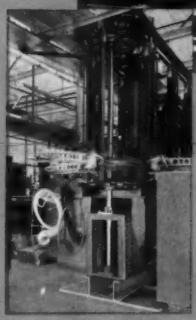
then to paint prep . . . where another H-VW-M conveyor cleans and pickles, drys and cools these same 300-lb. carrier loads of shell cases prior to spray painting. A typical return-type full-automatic does the job, loading and unloading at opposite end of conveyor. Cooler at left, 300°F. dryer at right.



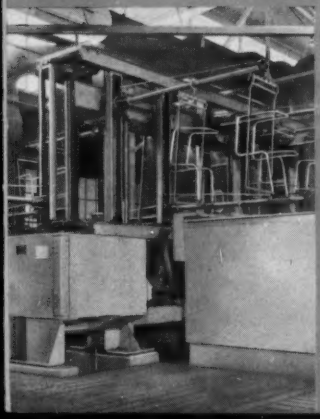


where precision is paramount . . . and minute tolerances of a uniform deposit must be maintained on each separate part, each carrier operates independently. Proper instruments, variable resistors, bi-polar circuits, and mechanical agitation of work in solution are all handled through independent controls on each carrier, as shown in inset.



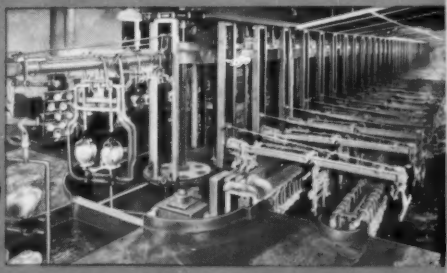


variable load capacity . . . is an essential when the same machine handles musical instruments of all shapes and sizes. Note the interior anode arrangement designed to allow complete plating of the all-important bellmouth. Inset shows a complex-shaped Sousaphone after heavy silver deposit.



adaptable for bulky loads . . . this high-lift, full-automatic conveyor handles clumsy, tubular steel furniture frames with ease. Notice the long arms, with adequate spacing between them to accommodate the bulkiest and most irregular shapes.

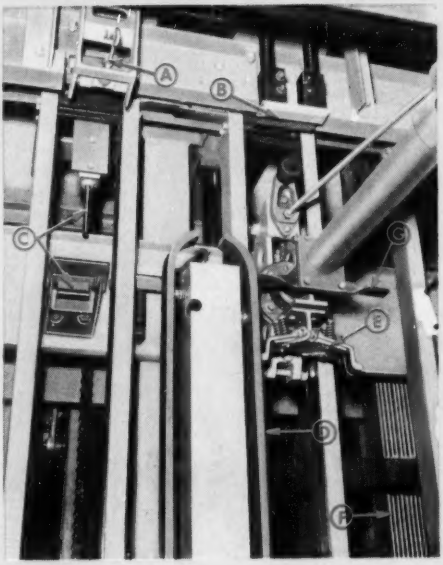
plating versatility . . . is the answer to the plating requirements of these attractive modern coffee makers. Like many other holloware appliances they are plated inside and outside by separate circuits. Notice the internal anode feature on the racks, and current collector fingers at the framework end of the arms.



SPECIAL FEATURES MAKE THE DIFFERENCE

Outstanding operating and construction features are the big reasons behind the supremacy of the H-VW-M Full Automatic Conveyor. Engineered for the broadest possible range of product and treatment application, these features produce the *important* differences in conveyor operation—the characteristics of versatility, adaptability, and flexibility that are vital to high speed and high quality production.

In this close-up view of the carrier arm assembly, a number of important construction features are visible.

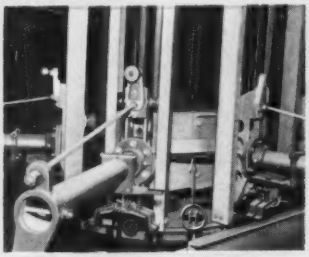


The Manual Reset Flipper (A) and the Bridge Flipper (B) set in the overhead "by-pass" track make possible the important by-pass feature of the conveyor. This feature allows carriers to skip any given station while in the elevated position. Available to operate manually or automatically, this by-pass feature provides flexibility in treatment sequences where individual steps in a process are to be eliminated. Also tanks and solution can be serviced without the need of an interruption in production because of this by-pass feature. Point (C) shows the Standard Flipper that closes to receive carrier for the vertical motion. The spring-loaded pin *positively* locks this flipper, preventing uncontrolled carrier descent.

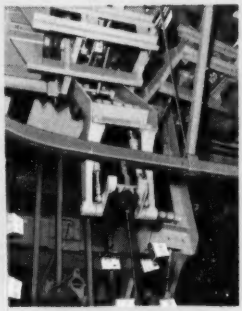
Another feature of the equipment is the manner in which it safeguards the work from any other than the highest quality treatment. A primary factor in this respect is the special arrangement for ensuring the presence of a partial flow of current as the work approaches the bath. Hot Leads (D) are contacted by the Collectors (G) of the assembly during the vertical transfer so that the instant the work reaches the bath, true, positive plating takes place.

Self-lubricating and spring-tensioned, the Collector Unit (E) is used for both positive and negative DC current, either one of which may be necessary for certain plating steps in the overall operation. Baths requiring separate circuits may be stationed side by side, emphasizing the conveyor's adaptability.

An additional feature is the construction and location of the low voltage Bus Bar (F). Brought up through the center of the conveyor, it is out of the way, and its open construction permits substantially shorter bus runs.



The rugged pipe-arm carrier is shown here at the down position. Point (H), visible between two vertical channels, is the Elevator Lifting Track, a *first* with H-VW-M. Raising carriers at all transfer points by means of track or flipper makes possible a wide scope of applications unlimited by space, height, weight, or lift.



Here is how H-VW-M solved the problem of automatically transferring racks from monorail to plating conveyor, from high to lower level. Other types available for all transfer requirements.

With the H-VW-M Full Automatic Conveyor, many in-process variations are easily made involving adjustments to the work, to the carriers, to the process used, or to other parts of the conveyor itself.

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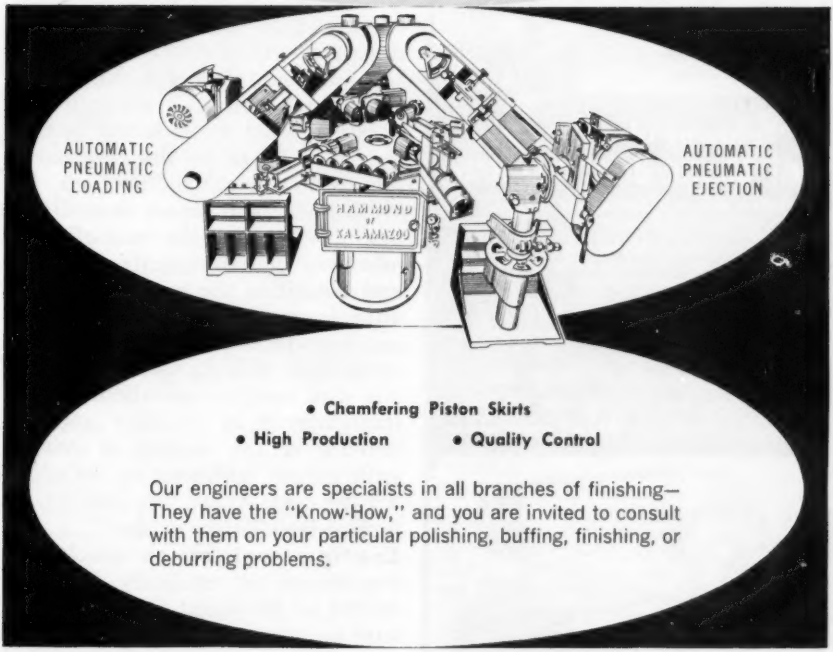

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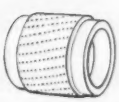

Other parts are being "Automated" on Hammond Automatics.

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loy layer is hard and brittle; these conditions in combination with alloy layer thickness exert a controlling influence on coating ductility and adherence. To improve these properties, the thickness and hardness of the alloy layer, which is responsible for the brittleness, must be reduced.

Alloy layer thickness can be reduced to some degree by decreasing the immersion time of the wire in the bath and by reducing the bath temperature; alloy layer hardness may only be reduced by the addition of alloying elements to the bath. Investigators have shown that silicon and beryllium are the most effective additives in reducing the hardness and inhibiting the formation of the alloy layer. The toxicity of beryllium introduces serious problems in connection with its use. In continuous wire coating operations, major improvement in ductility and adherence of the coating is evident with silicon additions up to about 2.5 per cent. Above this amount, no further benefits are evident.

Coating weight or thickness, smoothness or regularity, are controlled by the speed of travel of the wire during the continuous application of the coating. As the speed of travel increases, the weight of applied coating also increases and the coating becomes more irregular in thickness. At high speeds, the coating is characterized by variations in thickness which are probably caused by the flow characteristics of a relatively large volume of applied molten aluminum as well as vibration in

CIRCO DEGREASERS

NEW DESIGN

MODEL OP2

- ***Will last twice as long!***
- ***Reduce solvent costs 30% or more!***
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- ***Up to 40% less maintenance!***

NOTE THESE FEATURES . . .

1. **Unobstructed tank walls.** Condensing coil and condensate pan are recessed providing superior vapor control, effective solvent reclamation and unobstructed working area.
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4. **Lower height.** Working height reduced for easy operation.
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6. **Less floor space.** Designed to operate from either side.

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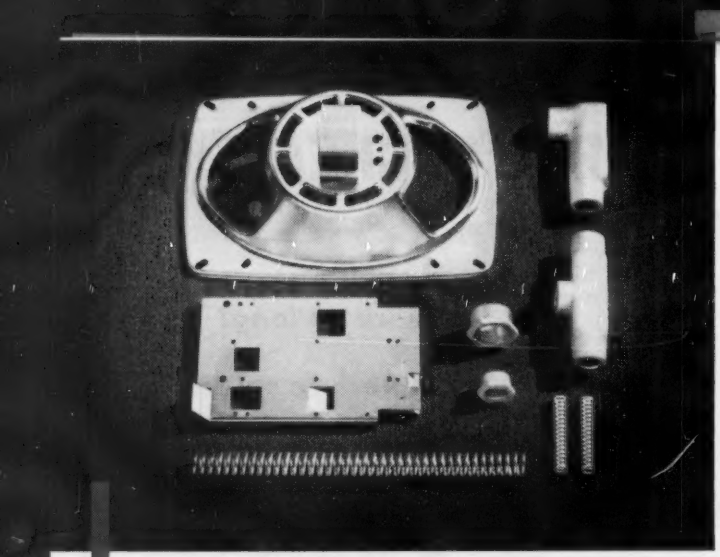

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Udylite Bry-Cad Process Gives the Faster and Brighter Cadmium Finish

Newly developed by Udylite research, Bry-Cad offers many interesting applications for cadmium plating.

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Udylite Bry-Cad has other advantages such as: High cathode efficiency, simplicity of operation and control, attractive finish with less tendency to finger mark, a self-lubricating metal and good resistance to mild alkalies. Bry-Cad is easily adapted to plating in barrels, hand operated tanks, semi-automatics or full automatic machines.

The Udylite Bry-Cad process is just one of the many electroplating processes pioneered by Udylite. Whether your need is for a process, equipment or supplies—be sure to consult your Udylite representative or fill out coupon and mail to us direct.

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Please have a sales representative call on us concerning Udylite's Bry-Cad plating process. Have him ask for:

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the system. The heavier or thicker coatings, characterized by irregularity, show a greater tendency toward cracking and peeling than do the thinner smoother coatings.

While control of coating ductility and adherence is exercised by the reduction of the hardness and thickness of the alloy layer, for optimum coating characteristics the outermost layer should consist of a fine-grained matrix of aluminum or aluminum alloy, similar in composition to the molten bath, with the aluminum-silicon-iron or aluminum-iron compound well distributed as fine particles.

The size of the wire also exerts an influence on coating characteristics. For a given speed of wire travel, the larger the wire size the heavier or thicker and the more irregular may be the applied aluminum coating. In general, heavy or thick and relatively irregular aluminum coatings on the larger sizes of wire show a tendency toward brittleness.

Hot dipped aluminum coatings applied by the ACCO aluminizing process are appraised for ductility

and adherence by means of the Wrap Test in which the wire is wrapped around a mandrel whose diameter is multiples of that of the coated wire. The coating technology is adjusted so that insofar as possible all coatings will pass the One Diameter Wrap Test. **Aluminum** coatings on iron and steel wire offer resistance to heat oxidation at relatively high temperatures. Some investigators have reported resistance up to temperatures of 1000 to 1300 deg. F., while others have indicated that this resistance extends to as high as 1600 deg. F. In any case, to develop heat or oxidation resistance, the coated wire must be subjected to a diffusion heat treatment which converts the outermost layer of relatively pure aluminum or aluminum alloy to the same constituent or compound as the alloy layer.

The characteristics of hot dipped aluminum coatings applied to iron and steel wire offer substantial and significant advantages in the extension of service life, and corrosion and oxidation resistance.

MARCHANT GOES AUTOMATIC IN PLATING

Udylite Automatic Plating Machine Brings Big Savings to Calculator Maker

The same benefits Marchant Calculators, Inc., enjoy from the installation of a Udylite automatic plating machine can be yours—and for only a modest capital investment.

Better process control, reduction in operating and maintenance costs and improved work quality are the result of Marchant's installation of a Udyiite Junior Full Automatic. In addition, they are now experiencing better ventilation, better and safer working conditions, manufacturing control with built-in instrumentation, greatly reduced materials handling and a minimum of rejects.

When the time came to install new plating facilities for their expanding business, Marchant naturally turned to Udylite. After a study of the Marchant problem Udylite engineers recommended the Udylite Junior with an automatic load and unload conveyor for the cadmium plating to fine tolerances of the many parts of the Marchant Calculator.

And so, another business friendship has been formed.

We at Udylite can help you improve quality and save money in your metal finishing operations. For quick response fill in the coupon below.

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We are interested in Udylite Automatic Equipment for our metal finishing operations. Have your salesman call.

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WIRE BRUSHING and MICRO-FINISHING

• Proved performance and dependability in industry for half a century

RECOMMENDATIONS and QUOTATIONS

• *We will be pleased to receive blue prints or preferably finished and unfinished samples of the part you contemplate finishing together with detailed information on present finishing operation and production requirements. On receipt of samples and data we will offer recommendations and quotations.*

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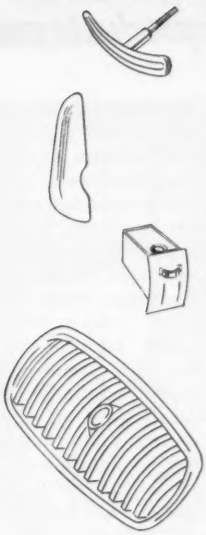
Another field report on "TRICLENE" D



BUMPER GUARDS being loaded into roller conveyor degreaser at Grand Rapids Metalcraft by worker Ben Kolenda.

THOROUGHLY CLEANED with TRICLENE D, bright bumper guards are removed at end of degreaser by James Holliday.

"TRICLENE® D makes vapor degreasing easier than ever . . . now we can put through a larger volume of work,"

Says C. Nesselroad, Mgr., Grand Rapids Metalcraft, Division F. L. Jacobs Co., Grand Rapids, Mich.

"We operate six degreasers—two manual and four conveyorized," continues Mr. Nesselroad, "and since we turn out as many as 150,000 parts per day, we've found we just can't *afford* to have trouble."

That's why Grand Rapids Metalcraft uses TRICLENE D trichlorethylene. With this rugged solvent, they've had consistently thorough, trouble-free degreasing of the automotive stampings they manufacture—bumper guards, brackets, ash trays and grill parts. And with TRICLENE D, their volume of work handled has shown an *increase* . . . and maintenance costs have *decreased*. Furthermore, Mr. Nesselroad concludes, "We've never found a degreasing job that TRICLENE D trichlorethylene couldn't do!"

Locked-in stabilizers give TRICLENE D unsurpassed resistance to *all* major causes of solvent deterioration—heat, light, air, acids and aluminum chloride—yet this rugged solvent contains nothing to harm even delicately machined metal surfaces. TRICLENE D retains its original high purity longer . . . continues to give *brighter cleaning of any metal* job after job, distillation after distillation. And remember, it costs no more!

FOR MORE INFORMATION on TRICLENE D and how it can bring a new standard of efficiency to your vapor degreasing operation, write our nearest District Office. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington 98, Delaware.

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. . . THROUGH CHEMISTRY

TRICLENE® D
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Practical Applications of modern products

Conveyorized Anodizing and Finishing Process

AT THE GENERAL FIREPROOFING COMPANY plant in Youngstown, Ohio, the world's largest manufacturer of metal furniture uses a conveyorized anodizing and finishing process to produce metal furniture for use in offices (Fig. 1), hotels and buildings all over the world. Both aluminum and steel are used in the construction of this furniture. Office desks, for instance, are steel except for aluminum trim. Office chairs, however, are entirely aluminum except for plastic or fabric trim. All aluminum parts are anodized so as to convert the surface of the aluminum to aluminum oxide, which has a high surface hardness, thus protecting products from scratches and abrasion. Some of the anodized parts are painted for final use, but most are used with just the anodized finish.

Finishing of the aluminum parts begins with polishing the heat treated and formed parts with an abrasive disc. After polishing, the parts are cleaned and then placed on the conveyor chain. Hooks attached to the conveyor chain hold angle bars, each of which has two long hooks suspended from it. Each part being processed is held by these two long hooks. Articles are transported through the anodizing, rinsing and sealing baths and to the

Fig. 1—Examples of General Fireproofing office furniture include desk, chairs, sofa, and tables below.

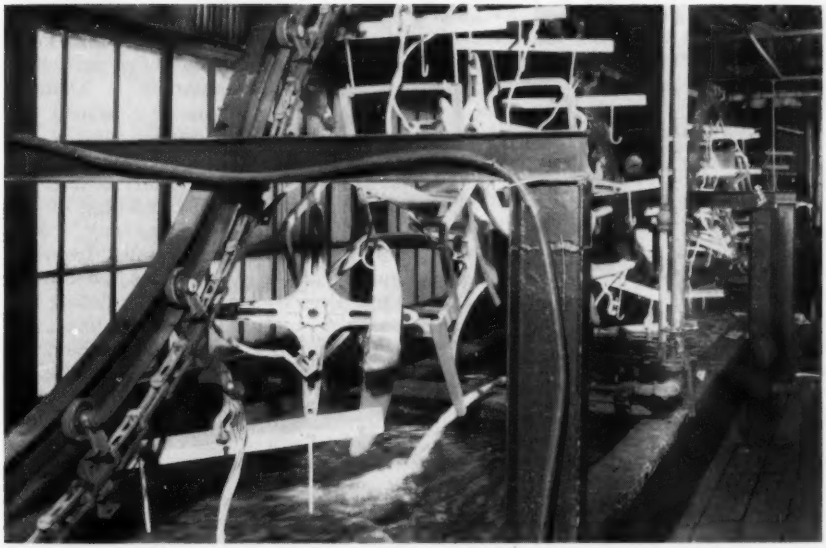

Fig. 2—A view of parts leaving the rinse section of the conveyorized setup for anodizing aluminum parts.

painting and assembly departments without being removed from the conveyor—a total of 700 feet without being touched. The conveyor, moving at 1½ feet per minute, curves downward into the various baths so as to allow the parts to remain submerged for such a distance as to give the desired immersion time for each step, with a fixed conveyor speed.

The anodizing bath is a 20 per cent solution of sulfuric acid in water. Electrical contact is made by means of a copper bus bar which is suspended from the conveyor frame about a foot above the bath. Strands of aluminum wire run from a brush type shoe to clamps on the aluminum part. The shoe rides the copper bar during the period in which the parts are in the anodizing bath, thus picking up the current and conducting it through the aluminum wire strands to the part being anodized and thence through the solution. The tank's lead lining acts as the cathode. The anodizing tank is 50 feet long, and is operated at room temperature. Parts remain in it for about 30 minutes.

After leaving the anodizing bath,

parts enter a rinse bath, which uses a circulating water supply to rinse sulfuric acid from the parts. A Deming centrifugal pump is used to circulate the bath. The pump is constructed of materials, including special packing, which allow it to handle the corrosive 4 per cent sulfuric acid solution which builds up between water changes. Parts remain in the 25-foot rinse tank for about 15 minutes.

Following the rinse bath (Fig. 2), parts are conveyed through a hot water sealing bath, which is operated at 200 deg. F. The length of this tank is 25 feet and parts remain submerged in it for 15 minutes. This bath is also circulated with a Deming centrifugal pump.

Parts to be painted are placed on a conveyor which takes them through a water wash spray booth. Deming pumps are used to circulate the water curtain, which carries a caustic solution to aid in collecting and removing overspray.

Since General Fireproofing is a large user of gray paint for finishing cabinets, desks, tables, and other furniture and fixtures, the company recently installed a system (Fig. 3) for bulk storage and handling of paint. Tank trucks deliver the paint at high viscosity to a 6000-gallon outside storage tank. Heating coils and electric heaters on the outside of the tank keep the paint warm. They are covered with six inches of insulation. A Deming slurry pump, originally designed for pumping Portland cement, pumps the thick, unmixed paint to the paint shop where it is thinned prior to use. To prevent settling and hardening of the paint while in the storage tank, a continuous line has been installed from the pump's outlet to the top of the storage tank, thus constantly recirculating the paint. A pressure valve in the line shuts off the pump when the line to the paint shop is open. Inside the plant, eight other pumps are used to circulate thinned paint to the various sections of the plant where it is needed.

For more data circle 1 on Reader Service Card

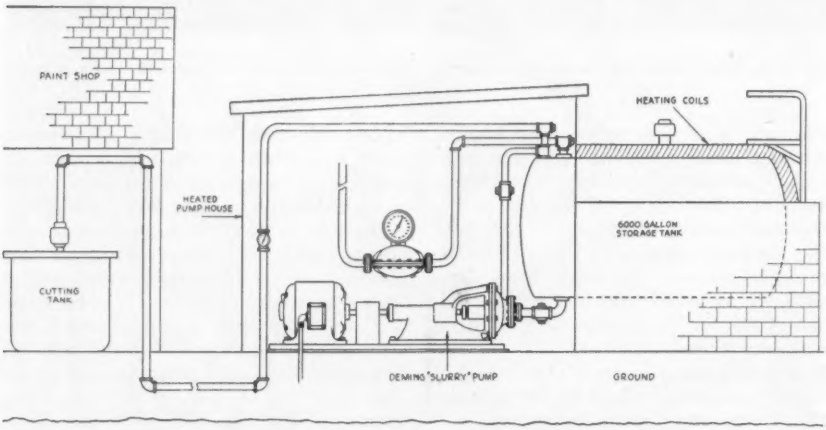

Fig. 3 — A diagram showing the outside storage tank and pump used for bringing the viscous paint into the cutting tank, where it is thinned for use in the General Fireproofing Company paint shop.

5 POINTS FOR FLAWLESS GALVANIZING

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● If you galvanize, here are five points by which you can judge your work. If your present process does *not* include complete control over these factors, they can become five good reasons why it will pay you to write for details on the PRE-GALV system:

METAL-PREPARATION — Pre-Galv acid additive provides controlled etching without danger of over pickling . . . an oxide free surface when work enters the flux.

FLUXING—Pre-Galv flux gives maximum adherence . . . *uniform* alloying of zinc to the basis metal.

CONTROLLED DROSS FORMATION—Dross is kept to a minimum in the Pre-Galv process.

UNIFORMITY OF ALLOY LAYER—Adhesion of the zinc and ductility of work processed with Pre-Galv system is superior to that of any known system because of extent and uniformity of the alloy layer produced.

BRILLIANT, CORROSION RESISTANT COATING—Uniform flow out of metal, evenness of alloy layer insures unusual brilliance *plus* top protection for finished work.

● One of a complete line of Promat protective products that are backed by extensive research and responsible service, the Pre-Galv system is easy to use and requires no additional equipment for use. Write for bulletin G1-F today.

PROMAT *Division*

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Waukegan, Illinois

For more data circle **156** on Reader Service Card

Electrostatic Spray Painting of Automobile Chassis

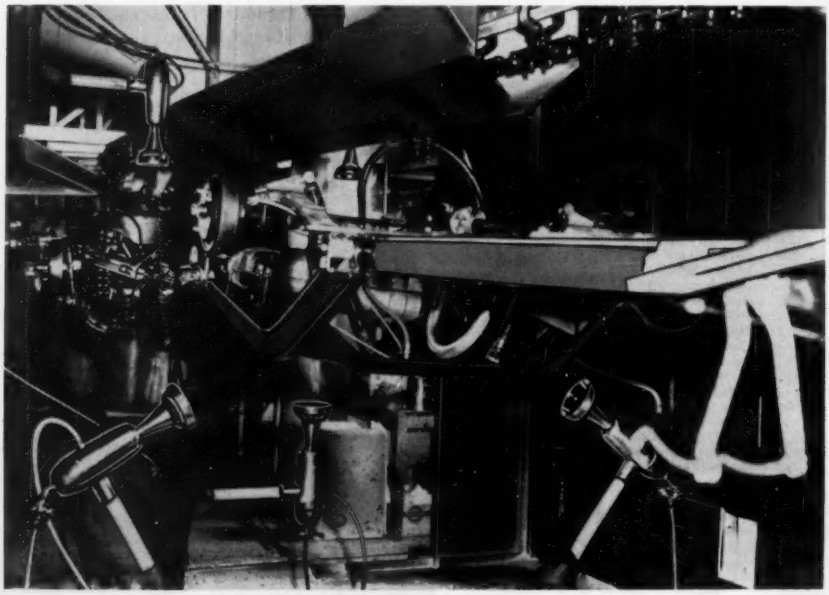
STUDEBAKER, in South Bend, Indiana, has installed Ransburg No. 2 process electrostatic spray painting apparatus for coating chassis for passenger cars.

Studebaker already was using electrostatic spray in applying prime coat to bodies. Results of extensive tests on chassis warranted the changeover.

Three different lengths of chassis are handled under the present setup. Hangers are affixed to rear and front axles of the chassis, which is painted in upside-down position.

Five 6 inch diameter atomizing bells are used. Two, at 45 degree angles, are positioned, one on either side of the line, near the front of the electro-spray booth. Another is directly below the conveyor, underneath the chassis, and two are located overhead near the exit of the booth.

Three micro switches on either side of the conveyor—just outside the electro-spray area—are timed to turn on and off the three pump units located outside the booth. The quick drying paint, with asphalt-type base, flows to the bells, or atomizers, only when chassis are in position for painting. The first switch on one side of the line starts one pump which supplies paint to the side atomizers as the chassis enters the electro-spray area. A second starts the pump feeding the middle atomizer, and the third controls the pumps feeding the two overhead atomizing bells. Switches on the opposite side of the



Five 6-inch atomizing bells are used in spray painting automobile chassis. An overhead conveyor is used to carry the chassis, which is painted in an upside down position, through the electrostatic field.

MICCRO COATINGS
Make Tough Jobs EASY!

MICCROSOL E-1003 — Today's outstanding heat-cured rack coating. Meets industry's highest standards for corrosion and abrasion resistance.

MICCROSTOP — For extreme accuracy in masking parts for all plating cycles.

MICCROMASK — Provides complete masking protection for hard chromium plating.

MICCROPEEL — A special lacquer that can be peeled easily from parts after all plating cycles.

MICCROWAX — Two waxes widely used for selective stop-off. C-562 for hard chromium; C-600 for high temperature cycles.

MICCROTEX — An air-dry rack coating for all plating cycles. Excellent for patching and repairing.

MICCROTAPE — An extruded tape which provides unexcelled protection for plating racks, and for masking parts prior to selective plating.

MICCROTUBE — Extruded tubing especially suited for use on contact wires, and for selective plating of simple parts.

MICCROLOID — Corrosion-resistant industrial maintenance paint.

* WRITE FOR PARTICULARS ON COMPANY LETTERHEAD

Developed and manufactured by experienced platers

MICCRO Products

MICHIGAN CHROME *and Chemical Company*

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conveyor are positioned to turn off the pumps after a chassis is coated, and before another enters the painting area.

With the Ransburg equipment, a voltage pack is connected to the paint sprayer, creating an electrostatic field between it and the articles to be painted. The pump units supply paint through the hollow drive shaft of the atomizer as needed, and rapid rotation feeds the paint at a uniform rate through the bell-shaped atomizer to its outer edge. Atomization occurs under the influence of the electrostatic field, producing a spray pattern of electrically charged particles. The attraction of the field pulls the spray to the moving articles which are grounded electrically by their hangers.

For more data circle **2** on Reader Service Card

Booster Oven Provides Added Heating Capacity

SPEEDED-UP PRODUCTION LINES and long, continuous service often make oven equipment obsolete.

There are several reasons for this situation:

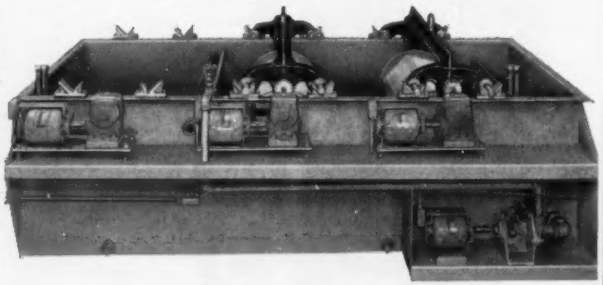
1) Oven efficiency declines over the years — jets, conductors, and blowers lose efficiency from continual service.

2) Oven installations were designed in the light of existing production requirements. Production increases above initial design specifications are often beyond the oven's capacity.

3) Progress over the years has called for new products or changes in product design. These in turn have altered finishing equipment requirements; higher temperatures, longer heating cycles, or lower temperatures now may be required to meet competitive marketing problems.

STUTZ

Alkali Cleaning & Rinsing Units . . .



for heavy duty—high speed Production

Stutz design in single or multiple units with or without rinsing compartment. Solution circulating pump for rapid elimination of surface grease into trap from which complete removal is made by draining of trap compartment daily.
Rotation of work in cylinders together with solution agitation of pump, provides complete cleaning in a single operation.

Cylinder drive and pump motors are ⅓ h.p. 440-220-3-60 with heater type motor control switches.
Plate or pipe coils installed.
With this type of equipment, vapor degreasing is not required.
Can also be furnished for electrolytic cleaning and with P.R. current; will do excellent removal of heavy furnace scale, rust, etc.

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"Complete metal finishing equipment and supplies"

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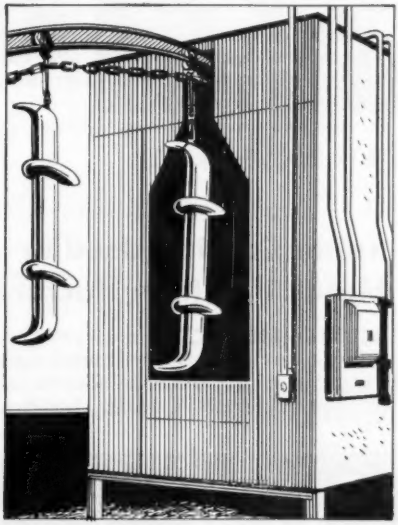
Start of a beautiful finish!

The start of a beautiful metal finish is a good washing compound. It must effectively clean all metals and, at the same time, assure less down-time and reduce production costs!



DIVERSEY 519

Solves Three Big Problems

1 *Excessive maintenance down-time caused by hard water scale in nozzles and on heating coils.*

519's superior water-softening action *prevents* scale from forming.

2 *Production rate limited by speed of cleaning operation.*

Quicker wetting and penetrating action of 519 speeds up washing operation.

3 *Compound requirements too high.*

519 provides excellent emulsification at *far lower* concentrations—and it lasts longer.

Write today for information on how Diversey 519 can solve all of these problems for you, and give you a superior metal finish. No obligation, of course.

THE DIVERSEY CORPORATION

1820 Roscoe Street, Chicago 13, Illinois

(In Canada: The Diversey Corporation (Canada) Ltd., Port Credit, Ont.)

For more data circle **159** on Reader Service Card

Practical Applications

The obvious solution to this problem is to purchase all new finishing equipment, specifically designed to satisfy current production demands. However, careful analysis of heating requirements will frequently show that all-new equipment is unnecessary. Existing oven equipment may not have dropped below the point of diminishing returns. Again, available floor space may prohibit a substantially larger installation.

The answer to this problem may be to install a booster oven ahead of the present oven to serve as a heat-up stage. These partial-oven units bring products up to temperature rapidly. Existing equipment continues to perform the baking, drying, curing, or preheating job, but in a shorter time.

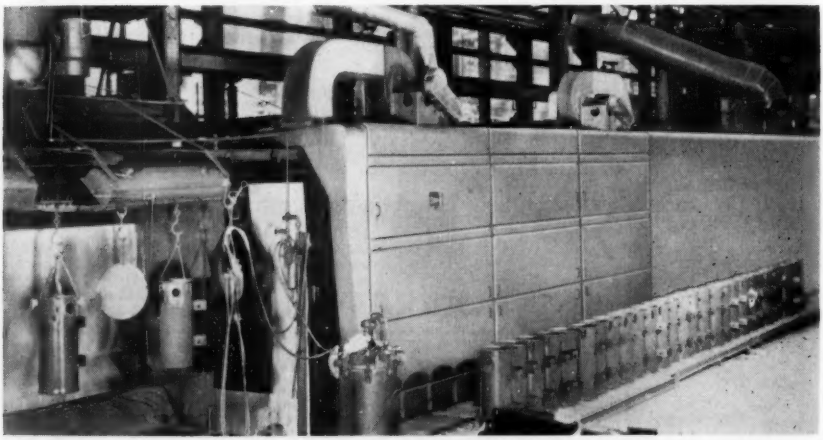
This problem of how to increase the efficiency of process heating equipment has been thoroughly investigated by Jensen Specialties, Inc., Detroit, Mich., manufacturer of Pan-L-Heat Infrared Ovens. Jensen Ovens have been found to be well suited to booster oven installations. The "building blocks" construction feature of Jensen Ovens makes them readily adaptable to all oven types. Several different standard sized panels allow heating engineers to design a booster oven to meet the various specifications established by existing equipment. Each heater panel utilizes metal sheathed resistance electric heater rods as the heat source. The rods are of variable intensity, designed to satisfy a wide range of temperature requirements. Such equipment also can be utilized as a part of a completely new oven at a future date.

For more data circle **3** on Reader Service Card

★ ★ ★

Roller Coating Used in Metal Sign Manufacture

SCIOTO SIGN CO. is a principal manufacturer of enameled metal signs widely used for roadside advertising, point-of-sale displays, dealer identifica-



A typical booster oven installation—(center of the photograph)—is shown in operation. The additional warmup time afforded permits increased production by the original oven equipment (shown at right).

Finishing Problem?...

Epoxy Finishes

NEW HORIZONS FOR EPOXY RESIN FINISHES

Watson-Standard's experience in producing epoxy resin finishes sets new standards for the metal coating industry. Coatings of epoxy resins in combination with vinyls and phenolics as well as esters and straight epoxies meet the most demanding requirements:

1. Excellent Chemical Resistance
2. Outstanding Adhesion to Metal
3. Superior Toughness-and Flexibility
4. Better Fabricating Qualities

These finishes are successfully used for refrigerators, caps and closures, drum and pail linings, quick bake coatings and many others. Perhaps the answer to your finishing problem is an epoxy resin coating.

Take advantage of Watson-Standard's experience. Let us help you with your coating problems.

"Knowledge, skill and technique through experience!"

Watson-Standard Co.

225 Galveston Ave., Pittsburgh 30, Pa.

NEW YORK OFFICE: 15 Park Row, New York 38, N. Y.
CHICAGO OFFICE: 55 E. Washington Street, Chicago 2, Ill.

INDUSTRIAL FINISHES • PAINTS • PLASTICS • CHEMICALS

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tion signs, daily calendar backs, license plates, and similar products. These are made of 34 to 20 gauge steel and aluminum, and range in size from 4 by 8 inches to 4 by 8 feet. Before silk screen processing and embossing, the products receive a base enamel coating on both front and back.

To improve efficiency without cutting quality, Scioto Sign installed the Gasway Model 32B Rollacoater. This equipment is now being used to enamel finish the signs and similar metal products. In operation, a controlled quantity of enamel is rolled over the entire piece, since the roller coater meters the paint being applied. Thus there are no areas missed in the process, and yet the coating applied is not too heavy. Film thickness is controlled, and more even, uniform baking is ensured.

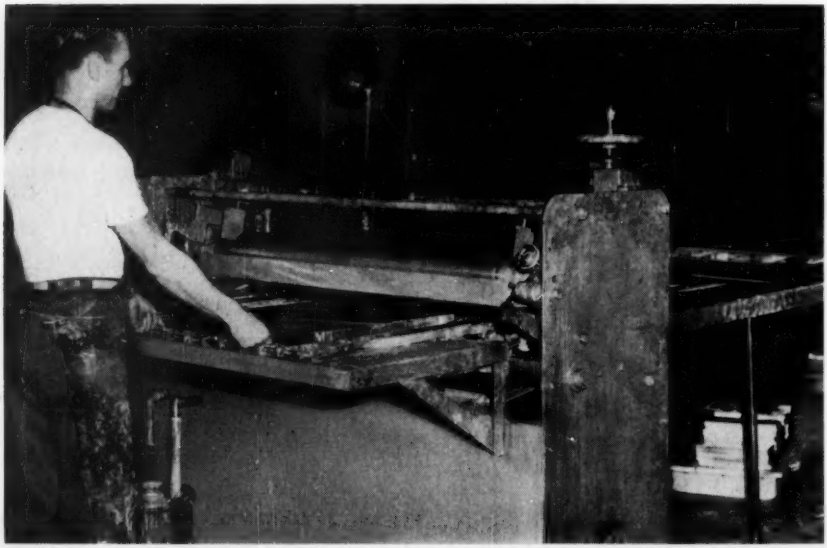
For more data circle **4** on Reader Service Card

Vacuum Metallizing in a Job Plating Shop

REGAL PLATING COMPANY, Benton Harbor, Michigan, entered the job plating field about three years ago. The company began by electroplating zinc and aluminum die castings for firms supplying the automobile and furniture industries.

In August 1953, the company installed vacuum metallizing apparatus, and since then, has built up a considerable business in this type of finish. The machine installed was a Stokes Model 426 Vacuum Metallizer, with a 48-inch diameter chamber.

Typical items metallized by Regal Plating are frames for point-of-purchase advertising, name plates, escutcheons, logotypes, and other decorative emblems for manufacturers of radios, washing machines, refrigerators, and other appliances.



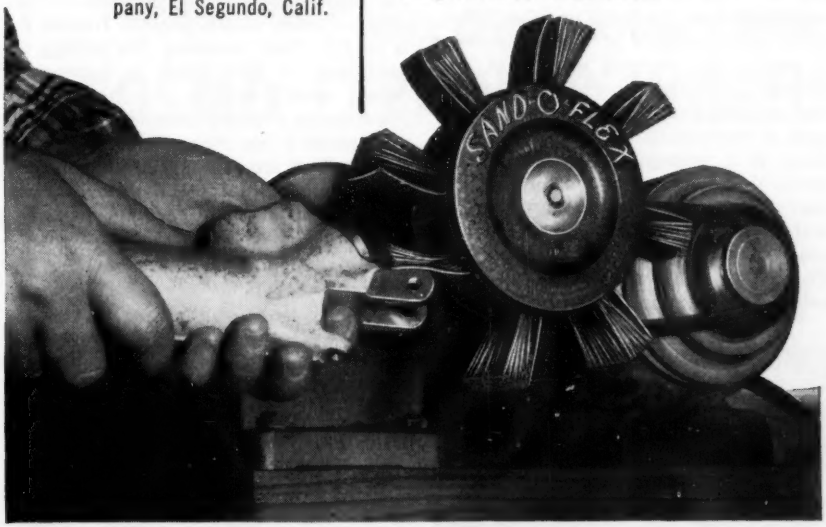
Roller coater is used to enamel front and back of metal sheets used in making signs and similar products.

"SAND-O-FLEX helps us do an expert low-cost deburring job."

says R. S. Wright, owner of Wright Deburring Company, El Segundo, Calif.

"Deburring is our business," *states Wright, "and we have to deburr and clean up metal parts faster and cheaper than the parts manufacturers can do it themselves or we couldn't stay in business. It must pay them to ship their parts to us for deburring rather than do this job in their own plants.*

"We use Sand-O-Flex on many different kinds of castings and machined parts. We find it does an excellent job and helps us keep our labor costs down."



There you have it from a man whose entire plant is devoted to *one operation only*—deburring metal parts. He uses Sand-O-Flex on all types of materials (steel, chrome, aluminum, brass, magnesium, etc.), especially on those with irregular shapes. Sand-O-Flex is attached to a bench arbor for deburring small parts and to a portable electric drill for larger pieces. Sand-O-Flex holds close tolerances when necessary, never digs into the metal or "flats" curved surfaces. Investigate Sand-O-Flex for your complex deburring problems. Write for catalog today giving prices and description of all four Sand-O-Flex models.

MERIT PRODUCTS, Inc.

4023 IRVING PLACE, CULVER CITY, CALIFORNIA

For more data circle **161** on Reader Service Card

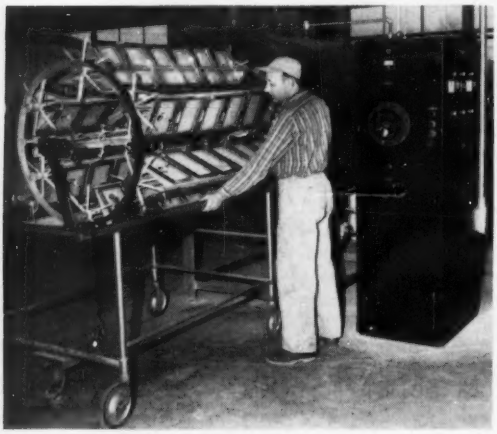
Practical Applications

The frames mentioned above are given a silvery appearance by vacuum metallizing with aluminum; 98 frames are finished in a 15-minute cycle.

Process details are as follows: First, the frames are cleaned of any residual mold lubricant, and then sprayed with a thin coat of a lacquer made by the Sullivan Varnish Co., Chicago, Ill. The lacquer is cured for one hour at 150 deg. F. This lacquer undercoat fills in any scratches, pin-holes or other blemishes and provides a smooth surface to receive the vacuum coating of aluminum. The frames are then loaded into specially adapted "spiders" on the rack of the metallizing unit, which hold them in a triangular array, with the backs shielded by a thin steel sheet, so that only the front surface of the frame will be in the line of fire and thus be coated with the vaporizing aluminum. These spiders are chain-driven and are rotated automatically during the flashing of the filaments, so that all the frames receive an equal and thorough coating.

The loaded rack is then rolled into the chamber, the door closed, and a vacuum of 0.5 micron is drawn. The aluminum—in the form of small staples hung from tungsten filaments running through the central axis of the chamber—is then vaporized by passing an electric current through the filaments; the metal melts and then vaporizes, that is, it takes flight in molecular form outward from the center of the chamber until it strikes and deposits on the cool surfaces of the picture frames as a bright silvery coating. No buffing or polishing of this finish is necessary. When metallizing is complete, the frames are removed from the chamber and given a top coat of the same varnish, which hardens by air drying and gives a durable protective layer over the metallized finish.

For more data circle **5** on Reader Service Card



Frames being metallized in a 48-inch vacuum metallizer installed in the plant of the Regal Plating Company, Benton Harbor, Michigan. (Photo courtesy F. J. Stokes Machine Co., Philadelphia 20, Pa.)

★ ★ ★

Hot Spray Unit Increases Production, Improves Quality

THE K & O CORPORATION, Van Nuys, California, manufacturer of toys and hobby kits, has increased production on model toy electric motor boats. Part of the increase in production is a result of the installation of the Spee-Flo hot spray process. The reject ratio has been reduced by the elimination of blushing, runs and sags.

Other advantages which have been gained by K & O through the use of hot spray equipment are better quality control, faster application, smoother, glossier finish, improved coverage and less overspray.

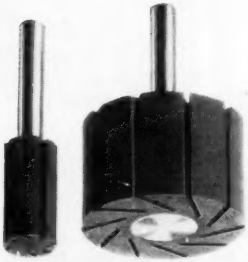
The hot spray process is the substitution of heat for thinner by which

give your shop a "BONUS BOOST"

With Chicago Rubber's NEW

COSMO EXPANDER WHEEL

You'll get faster grinding • Better work
Longer belt life • Easier trouble-free performance
Instant abrasive change • No down time



Cosmo Expanders up to 2" diameters available with ¼" mandrels for hand tools. Larger sizes up to 8" diameters—arbor hole type only. Specials to your specifications.

This brand new slotted rubber Cosmo Expander wheel cuts down high shop costs and valuable time. It's easier to operate and will allow you to get all the usable life out of your abrasive bands and sleeves. To change bands—no tools necessary. Slip it on and the centrifugal force exerted by this wheel holds the abrasive element tightly with no possibility of slipping—replacement becomes a matter of seconds. And what's most important, you will instantly notice a vast improvement in quality—the higher degree of resiliency in the Cosmo Expander will give you the best work you've ever done. You can't miss. Write for descriptive literature today.

"REMEMBER, IT'S THE WHEEL THAT DOES THE WORK"

CHICAGO RUBBER COMPANY, INC.

2620 CLYBOURN AVE. • CHICAGO 14, ILLINOIS

For more data circle **162** on Reader Service Card

paint material is reduced to spraying viscosity. Less atomizing pressure is required and the blasting effect is reduced to a more even flowing on of heavy bodied material. K & O finds that high humidity, or other weather variables do not affect the year round quality control and time saving features of the hot spray process. The Spee-Flo heater raises the paint temperature to a level where viscosity is constant and application is uniform.

The Spee-Flo units installed at K & O Corporation are "coil-less" and employ a simple centrifugal pump with no close tolerances or bearing surfaces to wear.

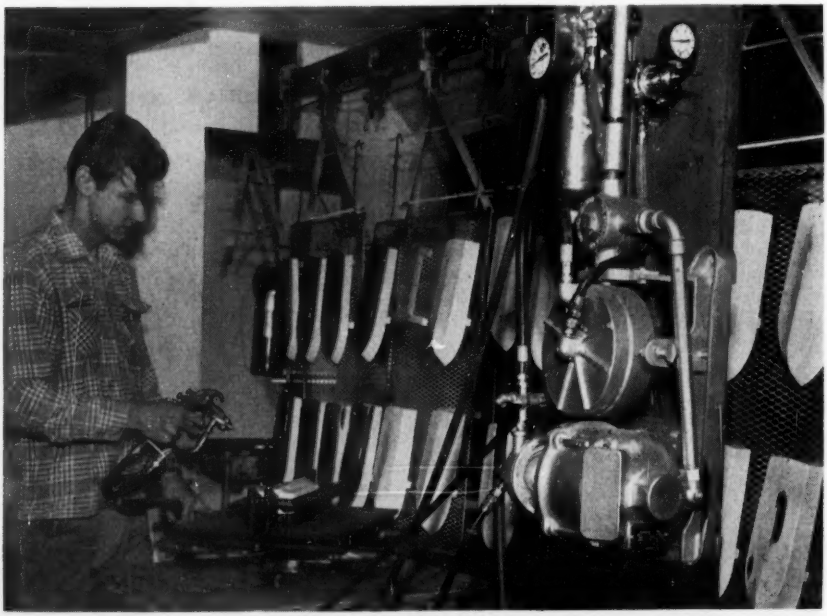
For more data circle **6** on Reader Service Card

FINISHES FOR ALUMINUM. An informative description of the ways in which the appearance and performance characteristics of aluminum can be changed is presented in a book recently published by the Aluminum Company of America.

Entitled "Finishes for Alcoa Aluminum," the book opens with descriptions of the basic characteristics of aluminum finishes. Characteristics which receive special mention in the book are reflection, durability and surface hardness.

An outline of finishing methods makes up a major portion of the book, and illustrates the application of specific finishes to products and structures. The methods described include: mechanical finishes; chemical finishes (etched and immersion coated); electrochemical finishes; electroplating; and paint, lacquer and enamel (including vitreous enameling processes).

Copies of the book are available by writing on company letterhead to **Aluminum Company of America,** 762 Alcoa Building, Pittsburgh 19, Pa.



Hot spray unit (right foreground) being used in painting model toy electric boats. Unit uses recirculating pump, which, in conjunction with the heater, keeps paint temperature uniform at all times.

Faxfilm, 23X, shows characteristic phosphate coating obtained on steel by using conventional alkali cleaner followed by phosphating material without ICRA. Note size of crystals.

Faxfilm, 23X, shows characteristic phosphate coating obtained on steel by using same alkali cleaner and Bonderite with ICRA. Note extremely fine crystals.

New Bonderite 800 series contains I C R A

(INTERNAL CRYSTAL REFINING AGENT)

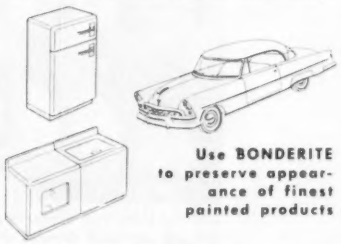
Built-in improved performance!

In the new Bonderite 800 Series, Parker presents a great new development in zinc phosphate coating. ICRA—Internal Crystal Refining Agent—produces a denser coating with finer crystalline structure. Use it on steel surfaces, and on zinc surfaces such as galvanneal, zinc base die castings, and electrogalvanized in mixed production with steel.

The very smooth, continuous phosphate surface produced by 800 Series Bonderites makes for exceptional evenness of paint penetration, with greater uniformity of paint luster. Metal coated with 800 Series Bonderites may be rubbed, bent or flexed without loss of coating bond. This means better adhesion of paint, also.

Many types of Bonderite with ICRA are available in the 800 Series. You can choose the one best suited to your needs as to method of application, processing time and temperature, and coating weight.

Get full information on Bonderite 800 Series with ICRA. Call or write today.



Use BONDERITE to preserve appearance of finest painted products

**Bonderite, Bonderlube, Parco, Parco Lubrite, Parker Pre-Namel—Reg. U.S. Pat. Off.*

1915 40th year 1955

Since 1915—Leader in the Field

PARKER RUST PROOF COMPANY

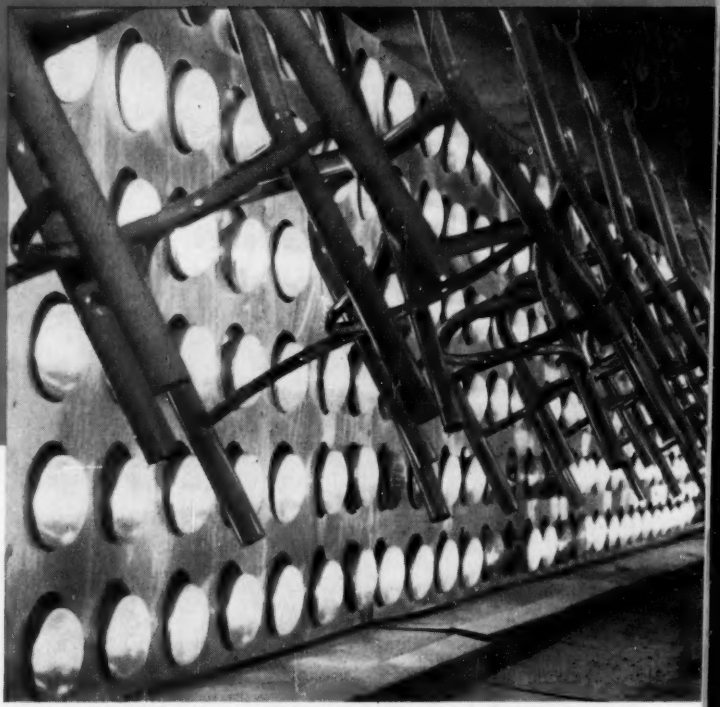
2172 E. Milwaukee, Detroit 11, Michigan

BONDERITE	BONDERITE and BONDERLUBE	PARCO COMPOUND	PARCO LUBRITE	TROPICAL
corrosion resistant paint base	aids in cold forming of metals	rust resistant	wear resistant for friction surfaces	heavy duty maintenance paints since 1883

For more data circle **163** on Reader Service Card

Seating Equipment is outstanding

Pittsburgh's special baking enamels



60-foot infra-red tunnel in plant of the Griggs Equipment Company in which Pittsburgh finishes on seat frames are baked for ten minutes at 300 degrees Fahrenheit

PPG

PITTSBURGH

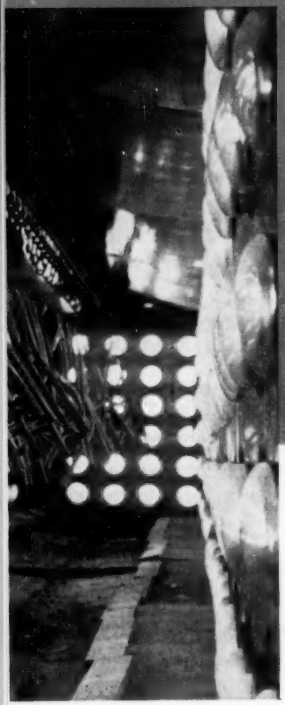
PAINTS • GLASS • CHEMICALS • BRUSHES

PITTSBURGH PLATE GLASS

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

by GRIGGS for scuff resistance!

provide utmost toughness and adhesion for colorful school and theater furniture



● **To withstand** the hard usage energetic youth gives school furniture, Griggs Equipment Company of Belton, Texas, demands the most durable finishes it can buy. And Pittsburgh's baking enamels have been meeting the severest requirements of this world-famous supplier of school furniture and theater seating for many years.

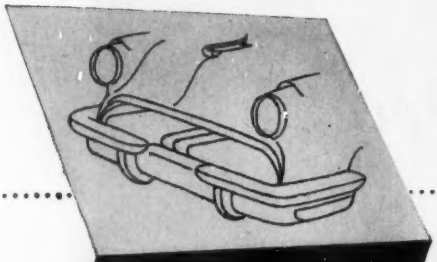
By experience these rugged enamels—supplied in ten colors—have proved they have excellent adhesion, give outstanding hiding, and are so tough as to be virtually scuff resistant.

These special finishes are applied by hand spraying or dipping on both pressed and tubular steel shapes with various contours. Because of their flexibility they meet easily dipping requirements with a wide range of temperatures.

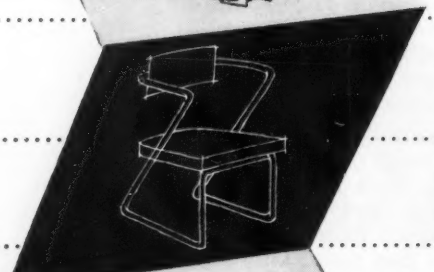
PAINTS
PLASTICS • FIBER GLASS
COMPANY

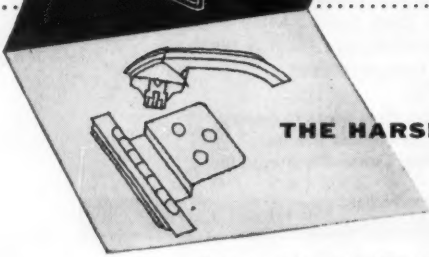
Pittsburgh Plate Glass Company
Industrial Paint Division,
1 Gateway Center, Pittsburgh, Pa.

For more data circle **164** on Reader Service Card



HARSHAW
electroplating
CHEMICALS
and
ANODES





nickel plating

. . still and barrel nickel anodes—all commercial grades and sizes . anode bags . single nickel salts—nickel chloride . nickel carbonate . nickel fluoborate boric acid

chromium plating

. . . pure "Krome Flake" 99.8% CrO_3 . . sulphates less than .10% . . lead, tin-lead and antimony-lead anodes.

copper plating

. . copper ball anodes . . Rochelle Salts . . . sodium and copper cyanides . . copper sulfate . . copper fluoborate.

cadmium plating

. . . ball and cast cadmium anodes . . . cadmium oxide . . . sodium cyanide . . . cadmium fluoborate.

tin plating

. . . cast tin anodes . . . sodium stannate . . . stannous sulfate . . . tin fluoborate . . . acid tin addition agent.

zinc plating

. . . ball and cast zinc anodes . . . sodium and zinc cyanide . . . zinc sulfate . . zinc fluoborate.

lead plating

. . . cast lead anodes . . . lead fluoborate.

silver plating

. . . silver cyanide.

THE HARSHAW CHEMICAL COMPANY

Cleveland 6, Ohio

Chicago 10, Ill. • Cincinnati 13, Ohio • Detroit 28, Mich.
Houston 11, Texas • Los Angeles 22, Calif. • Philadelphia 48, Pa.
Pittsburgh 22, Pa. • New York 17, N. Y.

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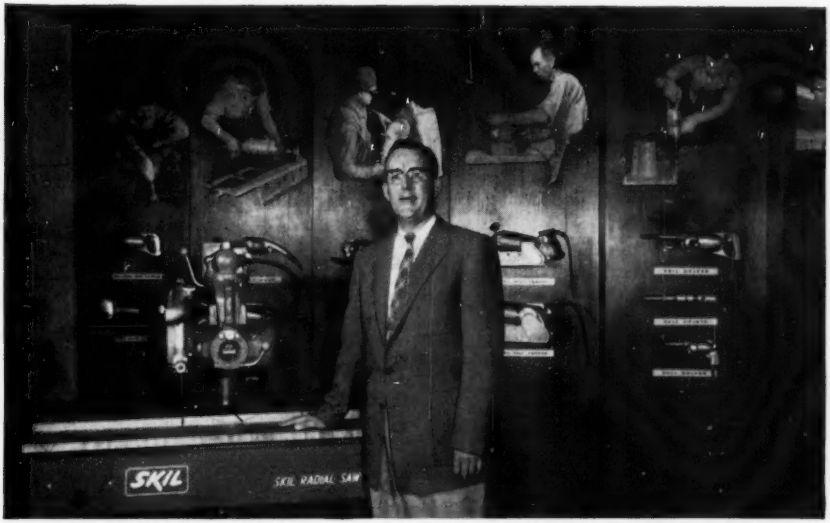


R. W. Christensen, assistant to the vice president, Skil Corp., Chicago, Ill., says:

"We increased our production efficiency by using Wyandotte Pre-Fos"

"We originally bought PRE-FOS* for an in-process rust preventative," says R. W. Christensen, assistant to the vice president of Skil Corporation, famous makers of power tools. "We found that it provided such an excellent surface for paint, that we now treat with PRE-FOS all product parts that are to be painted. Production efficiency has increased – for it also does a better job of cleaning than our previous process. And paint *definitely* adheres better to PRE-FOS-treated surfaces."

PRE-FOS is outstanding for cleaning and phosphatizing steel, as well as non-ferrous metals. It removes shop dirt and fabricating soil . . . in a spray washer or soak tank! PRE-FOS deposits a fine-grained phosphate coating, increasing the metal's corrosion resistance, and providing an excellent base for paint.

You can improve the quality of your "finish" with Wyandotte PRE-FOS – for cleaning and phosphatizing metal surfaces before paint application. You'll cut operating costs, too, because of PRE-FOS' low, low use-cost! Call your nearest Wyandotte representative today! *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, Calif. Offices in principal cities.*

*REG. U.S. PAT. OFF.

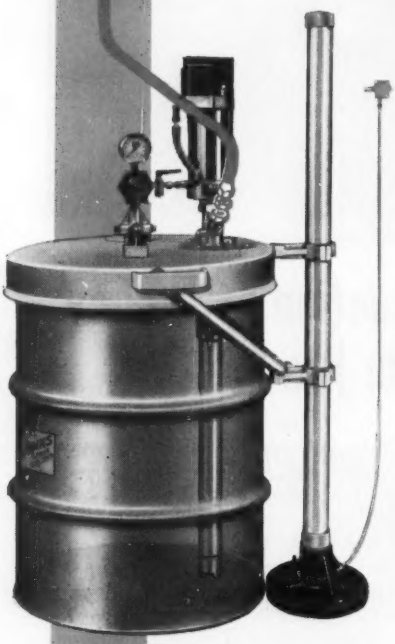
Wyandotte CHEMICALS

J. B. FORD DIVISION

Specialists in Metal-Cleaning Products

For more data circle **166** on Reader Service Card

A new and better pump for applying buffing compounds automatically . . .



Binks new, air-operated material handling pumps are the ideal method of moving buffing compounds. Automatic application of buffing compounds to polishing wheels has many advantages: it is *safe, fast,* and *economical*—and control is simplified. Here are some other reasons why Binks all-new Material Handling Pumps are favorites:

Completely new in design: These pumps are designed, engineered and manufactured by Binks exclusively for moving heavy materials. They will handle even the most difficult materials.

Operate slower—deliver more: These pumps have a long stroke that moves more material with the pump operating slowly.

Use less air: Every ounce of air works. Large ports eliminate back pressures.

Continuous smooth flow: Binks new pumps deliver compound on both up and down strokes. Double tube construction lessens material restriction.

Low maintenance: New type Auto-Cycle air valve is protected by a pressurized housing that shuts out dust and dirt. Special long-life packings are used in the air motor. The pump section does not use packings of any kind. Materials cannot work up into the motor.

Ample power-plus: This new Binks buffing compound pump is available in 4-to-1 ratio. One Binks material handling pump will supply enough buffing compound for 10 automatic spray guns.

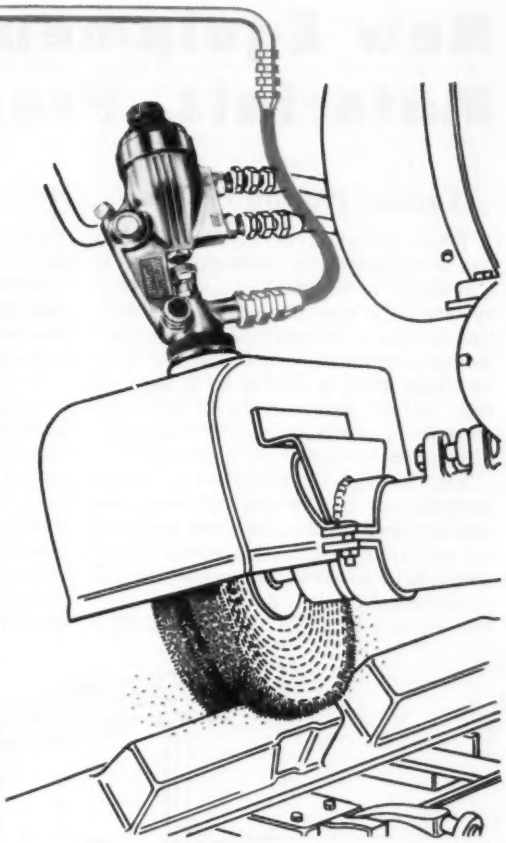
For further information: Ask your nearest Binks representative, material supplier, or write directly to Binks for technical assistance. Also ask for a copy of Bulletin 703 which contains complete information about Binks *all-new* material handling pump for use with buffing compounds.

supply buffing compound faster, safer, and more economically...

Illustrated to the right is a typical set-up showing how a Binks Model 21V Automatic Spray Gun applies compound to a buffing wheel on a production line.

Binks *all-new* material handling pump can supply buffing compound to as many as 10 such automatic guns, each operating continuously. The pump assures a uniform flow of material to the buffing wheels. Pumps can be supplied for either a "dead-end" or "circulating" system. In the latter, compound is continuously circulated from the pump past the guns and back to the drum at a controlled pressure, assuring complete agitation.

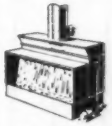
The automatic spray guns can be operated in 4 ways: (1) by a cam; (2) by a hand-operated 3-way valve; (3) by a foot-operated 3-way valve; and (4) by an electric timer.



IMPORTANT—*Consult with material supplier or manufacturer first.* Before automation is considered in this field, it is wise to check with the supplier or manufacturer of the liquid compound you are now using. He can be of great help to you in selecting the right equipment. Some compounds require no agitation...others do. Be sure you know before you buy any equipment.

Binks
EVERYTHING FOR
SPRAY PAINTING

127-55 GUNS



SPRAY BOOTHS

FREE INSTRUCTION

Binks Manufacturing Co.
3118-40 Carroll Avenue Chicago 12, Illinois

REPRESENTATIVES IN PRINCIPAL U.S. & CANADIAN CITIES · SEE YOUR CLASSIFIED DIRECTORY

For more data circle **167** on Reader Service Card

New Equipment, Materials, Processes

Copper Plating Process

Thor Chemical & Equipment Co. has announced the development of a non-alloy, non-critical copper plating system. The manufacturer states that this process gives bright, ductile deposits over any metal without a strike. The resultant finish is said to be dense and easy to buff, and may be plated with chromium, cadmium, nickel, zinc, rhodium, silver or gold.

The solution is operated at room temperature to 110 deg. F., requires low amperage and voltage, and requires no agitation or filtration. Only small amounts of additives are needed for replenishment of the solution.

For more data circle **7** on Reader Service Card

Automatic Plating Machine

Demonstrated for the first time at the 1955 Industrial Finishing Exposition, Wagner Brothers' fully automatic plating mechanism, the "Platocrat," incorporates many features designed to increase efficiency.

Among the Platocrat's features are: a replaceable plating tank which enables the plater to change from cadmium to zinc in minutes—one tank is pulled aside and replaced with a spare tank; the plating tank is electrically isolated from the rest of the mechanism to eliminate the possibility of stray currents; three-point rail contact of work-carriers assures constant, dependable current flow; a versatile cycle al-

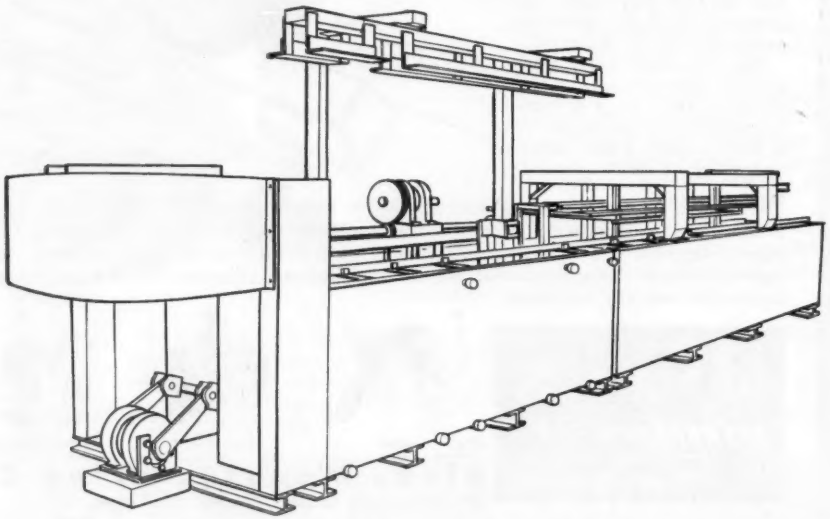


Fig. 1—Drawing of "Platocrat" automatic plating machine. One 3 h.p. motor runs the entire mechanism.

lows as many as seven stations in both the pre- and post-plating cycle. Tanks are sectionalized at the factory to particular needs. Racks are 12 by 6 by 30 inches, providing parts carrying area.

The Platocrat is hydraulically powered for smooth parts transfer. One 3-h.p. motor runs the entire mechanism through two hydromotors, one for horizontal motion and one for vertical movements. All transfer and conveying mechanism is mounted on a reciprocating carriage located between the two rows of tanks. This carriage mechanism is suspended on rollers moving in a channel track.

Two basic movements bring parts through the full plating cycle, one forward and reverse straight line horizontal motion and one raising and lowering vertical movement.

Plating racks are attached to work-carriers at the loading station; a hydraulically operated automatic loader is available as optional equipment. When the machine is started, lifting arms fixed to the carriage engage the work-carriers being transferred and lift them at all points on one side of the machine, and carry them forward to the next station where they are lowered and disengaged from the lifting arm. This sequence is simultaneously produced in reverse on the opposite side so that, when the lifting arms are lowered on one side, they are raised on the other side. In the end tank, the work-carrier is advanced by means of a reciprocating arcuate rail actuated with the carriage movement.

Lubrication is centralized, quickly accomplished by pushing a button.

A comprehensive technical description of the Platocrat can be obtained by writing Platocrat Div., Wagner Brothers, Inc., 424 Midland Ave., Detroit 3, Michigan.

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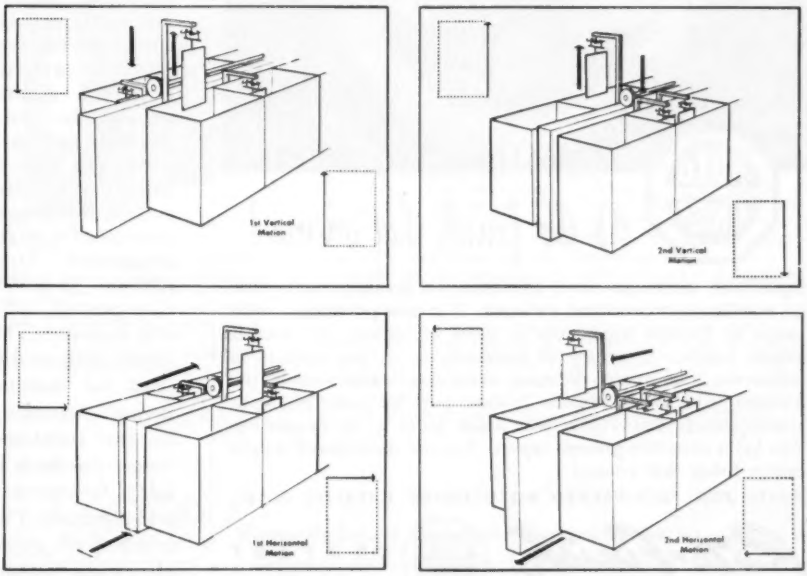

Fig. 2—Diagrams show operational sequence of conveyor movements on automatic plating machine.

Chromium Plating Process

A production plating process that deposits a chromium plate which provides improved resistance to corrosion has been announced by United Chromium, Incorporated.

Called "Crack-Free Chromium," the plate is reported to be deposited free of any structural imperfection that would allow corrosive materials to come in contact with the underlying surface being protected. As a result, the manufacturer recommends its use directly over steel, without an undercoat.

Other desirable properties of the deposit produced by the process are reported to include a low coefficient of friction, good adhesion, a non-galling surface and improved ductility. The Crack-Free deposit has an attractive light gray matte appearance. It can be readily buffed to a high lustre.

A photo-micrograph of a cross-section of the Crack-Free plate shows a dense, continuous structure.

Unichrome Crack-Free Chromium plating is done with a special chromic acid type bath having automatic regulation of the catalyst concentration. Standard plating equipment and procedures are used. The bath is prepared by dissolving the proper amount of a single compound, Unichrome SHRS Compound CF-500, in water. The same compound is used for maintenance. According to the manufacturer, the bath is easy to operate and maintain. The bath has good throwing power and plating speed.

Roto-Finish maintains exact tolerances on precision parts with no significant dimensional changes. It makes possible a wide range of finishes applicable to parts of almost any size or shape; finishes a variety of materials — at big savings in manpower and costs. Without obligation, send sample unfinished parts to us. Include finished part for guide and your specifications. Roto-Finish will finish parts in its laboratory. You get a complete process report. You are guaranteed results and a finish that counts!

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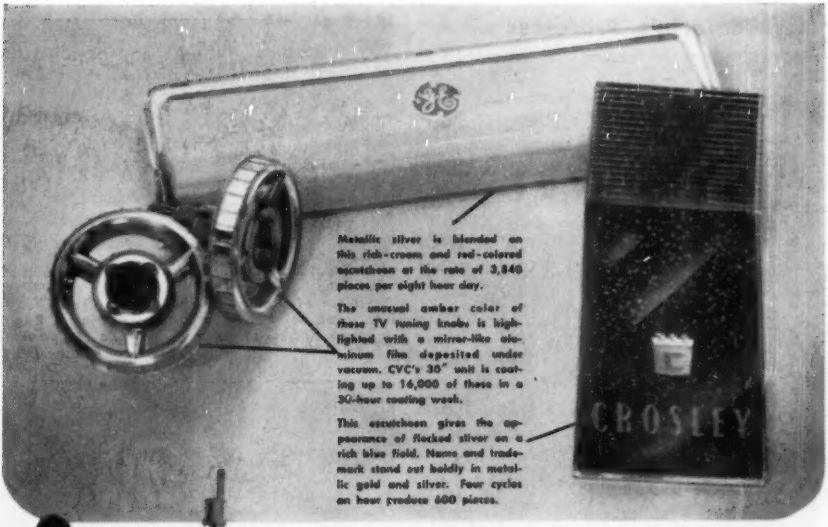
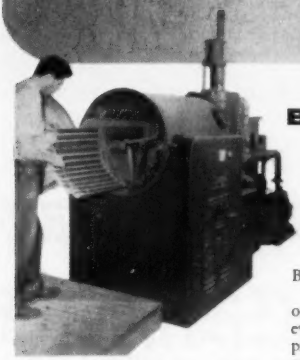

Metallic silver is blended on this rich-cream and red-colored escutcheon at the rate of 3,840 pieces per eight hour day.
The unusual amber color of these TV tuning knobs is highlighted with a mirror-like aluminum film deposited under vacuum. CVC's 30" unit is coating up to 16,000 of these in a 30-hour coating week.
This escutcheon gives the appearance of flocked silver on a rich blue field. Name and trademark stand out boldly in metallic gold and silver. Four cycles an hour produce 600 pieces.
CROSLEY



This CVC type LCI-30 high-vacuum coater is metallizing escutcheons and other parts at Buffalo Molded Plastics Inc. Photo shows operator inserting loaded racks into the coater. Like all CVC coaters, this unit was delivered with all necessary equipment ready for immediate installation.

Brilliant Escutcheons by the thousand

CVC vacuum metallizing fills heavy production quotas fast

"WE are already operating at four cycles an hour with our new *CVC* coater," writes Charles E. Catalde, President, Buffalo Molded Plastics Inc.

"This is more than adequate for our present production quotas. However, when we're ready for increased production, I'm sure we can add another complete cycle without any trouble."

The *CVC* vacuum coater Mr. Catalde speaks of gives a chamberful of parts a brilliant metallic luster in a matter of minutes.

And it doesn't require a skilled operator—a few hours experience in the use of the machine trains any of your help to turn out flawless pieces in large quantities.

The operator simply inserts racks of lacquered parts into the vacuum chamber, valves in the roughing pump for initial evacuation, and then opens the high-vacuum valve to the diffusion pump. In a matter of seven or eight minutes the chamber pressure reaches the desired level and the operator flashes the filament which evaporates the aluminum. Immediately the aluminum begins to condense on the parts. It's easy. It's inexpensive.

We'll be glad to share our experience in vacuum metallizing and associated lacquer operations to help you set up your own system.

For further information, write to ***Consolidated Vacuum Corporation, Rochester 3, N. Y.*** (a subsidiary of Consolidated Engineering Corporation, Pasadena, California).

CVC

Headquarters for High Vacuum

Consolidated Vacuum Corporation Rochester 3, N. Y.

a subsidiary of CONSOLIDATED ENGINEERING CORPORATION, *Pasadena, California*

CVC sales now handled through Consolidated Engineering Corporation with offices located in: Albuquerque • Atlanta Boston • Buffalo • Chicago • Dallas • Detroit • New York • Palo Alto • Pasadena • Philadelphia • Seattle • Washington, D. C.

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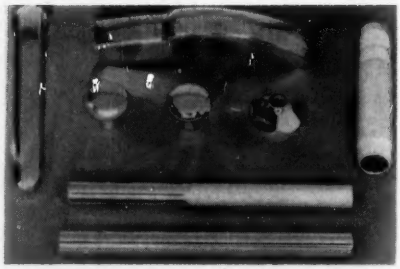
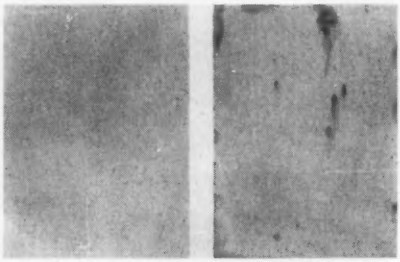
A summary of the properties reported for Unichrome CF-500 Crack-Free deposit follows:

1. Better corrosion resistance than ordinary chromium plated directly on steel.
2. Remains crack-free when heated to 1000 deg. F. and plunged into water.
3. Soft and ductile. (500-700 Knoop)
4. Excellent adhesion.
5. Improved non-galling, non-seizing and leveling properties.
6. Crack-Free Chromium plated directly on steel provides a good protective coating.

To protect shafts from rusting and at the same time to get both chemical and wear resistance, a manufacturer of washing machines recently put into production an automatic plating machine to plate Unichrome Crack-Free Chromium directly on steel. After 100 hours of exposure to salt spray, a steel shaft plated with one-half mil (0.0005 inch) was practically unaffected.



A variety of parts plated with Crack-Free Chromium. Some are buffed, others are as-plated. Bright or matte finish can be produced with the process.



Salt spray exposure tests on Crack-Free Chromium plated directly on steel. Left panel had 24 hours exposure; right panel had 100 hours exposure.

Even where high corrosion resistance is not of prime importance, Crack-Free Chromium is said to be advantageous. Use of the process on cold stamping dies for embossing silverware is reported to give improved die life.

Among other industrial applications reported in the pilot production stage are: steel machine parts for calculating machines; brake rods; steam blow-out valves; aircraft latches; boiler parts; hand tools; hydraulic rams and pistons; copper cooling coils; and mandrels for drawing tubes.

In addition to industrial applications

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Stampings and other metal parts take plating or painting with fewer rejects, and lower batch and unit costs, when first cleaned with Dow Sodium Orthosilicate.

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cleaning compound does a better job on metals and cuts costs twice— in cleaning and finishing

Your plating or painting results—and *costs*—are controlled by your cleaning. When Dow Sodium Orthosilicate is used in your dip, soak or electrolytic process, there are fewer cleaning *or* finishing rejects.

This heavy-duty cleaner readily emulsifies oils, fats and waxes. There's *no* redeposition. Dow Sodium Orthosilicate's high acid capacity and high pH give clean, bare parts ready for reject-free finishing.

Solutions of Dow Sodium Orthosilicate have a high electrical conductivity, permitting any current density *without* excessive voltage.

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where corrosion and wear resistance, good adhesion and ductility are required, the Crack-Free chromium plating process holds promise for decorative chromium finishing.

For most decorative applications it is necessary to buff if a high luster is to be obtained. However,, the buffing operation is not prolonged or heavy.

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★ ★ ★

Overhead Conveyor

With the development of a flangeless 4 inch trolley conveyor wheel with a load rating of 600 pounds, and the light-weight Trol-E-Veyor System, The Alvey-Ferguson Co., Cincinnati 9, Ohio, offers a complete range of overhead trolley conveying systems.

The wheel for a 4 inch I-beam is grease lubricated and sealed against dirt. It is of turned carbon steel construction, thoroughly hardened, and has precision-ground race-ways with chrome steel balls caged in riveted 2-piece steel retainers. Provision is made for easy lubrication. With curved tread designed to center the trolley, for "line contact" on the lower I-beam flange, so as to reduce friction and assure maximum load capacity, the wheel runs more smoothly and quietly. The Alvey-Ferguson Trolley Wheel is available with automatic lubricators.

Flangeless Trolley Conveyor Wheel

The trolley brackets are made from drop-forged high carbon steel. All parts are interchangeable and easy to as-

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Don't throw away your used abrasive belts, we can recoat them and return them to you as good as new. The saving in grinding costs to you is substantial.

Write and let us know the type of product, size, grit, backing and type of material to be polished.

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Seymour service extends beyond the making of Anodes and Bright Nickel. It goes right to the heart of your individual plating problems with the services available to you—without cost—in the Seymour Laboratory.

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NICKEL ANODES in all standard shapes and formulas.

"SEYCAST" Nickel Anodes of 99% cast nickel.

ANODES of Copper, Brass, Bronze, Zinc in all types.

BRIGHT NICKEL produces bright deposits without coloring and buffing.

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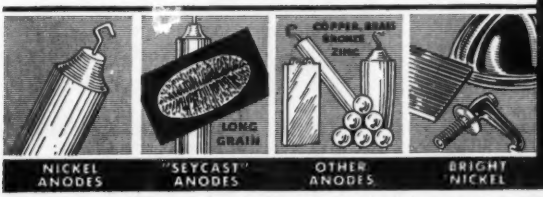

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semble in the chain.

For a Trolley Conveyor Booklet address The Alvey-Ferguson Co., Dept. OTC, Cincinnati 9, Ohio.

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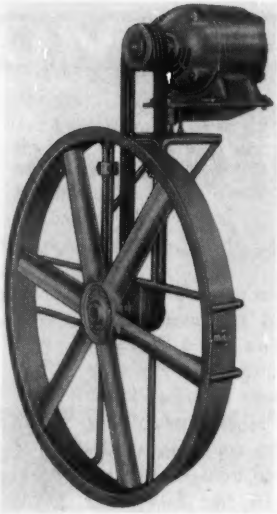
★ ★ ★

Exhaust Fan

The Series "R" belt driven exhaust fan has been added to the line of exhaust fans built by the M & E Manufacturing Co., Indianapolis, Indiana.

The unit is available in a complete range of sizes, 12 through 48 inches in diameter, with capacities from 900 to 38,000 c.f.m. The nozzles are suitable for operation against static pressures up to 1½ inches. Design features include a non-sparking, corrosion-resistant cast aluminum blade, sealed ball



Series R Exhaust Fan

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BLACKENING SALT

Black Oxide finishing for rust resistance and decorative parts. Speedy black coating in water solution with no electric current. Permanent black finish on ordnance parts, tools, aircraft, bearing races. Dazzling black decorative finish for television cameras, business machines, hardware, metal screens and machine parts. Excellent bond for paints and enamels. Simple one bath operation. Write for bulletin H-16. Park Chemical Co., 8078 Military Ave., Detroit 4, Mich.

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Q A

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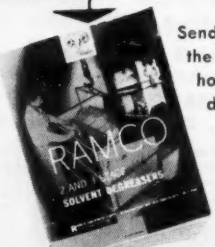

Send for your copy of the Ramco Bulletin. See how Ramco 2- and 3-dip degreaser can solve your metal parts cleaning problems safely, efficiently, economically! Send today!

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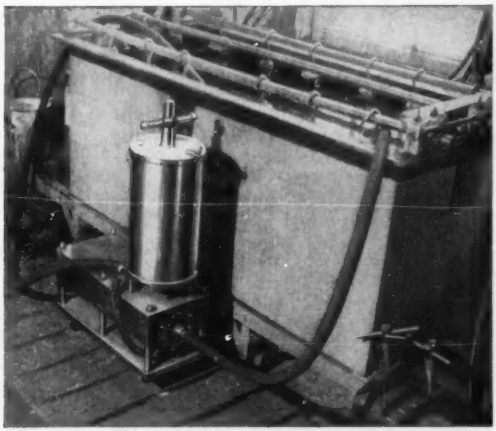
Here's how to cut your losses

get better finished plated work — save time and labor



The *"Sealed-Disc"* Filter will remove all dirt, dust, and sludge from your plating solutions. You will no longer worry about pitting, spotting, poor adhesion, formation of nodules, etc.

More and more platers testify to the remarkable savings in operating time and labor that the *"Sealed-Disc"* Filter gives them. These cost-minded platers get better finished plated work and have found that their solutions last longer. *"Sealed-Disc"* Filters, designed to meet plating room requirements, are smaller, more compact and portable, than ordinary conventional filters.

Regardless of the size of type of your installation, there's a *"Sealed-Disc"* Filter to "fit your job". You can depend on a *"Sealed-Disc"* Filter for positive, trouble-free performance that's proof against even the invisible impurities that cause nodules and porousness, proof against losses caused by rejects and reworking. Write for complete details or contact your regular plating supplier.

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Other Alsop Plating Room Equipment

We manufacture a full line of Mixers and Agitators covering a complete range of sizes, for mixing, blending, and dissolving. Stainless Steel Mixing Tanks are also available in a wide range of capacities. For full details and illustrations write for your free catalog.

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bearings and adjustable motor mount support.

The Series "R" exhaust fan is designed for operation with any standard motor of the proper rating, and is available with or without motor.

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★ ★ ★

Polishing Wheel

An improved coated abrasive contour wheel has been introduced by the Behr-Manning Division of Norton Company.

The wheel permits more efficient polishing of complex contours. It is substantially an all-coated abrasive wheel, and thus is capable of being shaped to the work and holding the shape as it wears. Designed for use on straight-line and rotary automatic polishing equipment, it is equally adaptable to semi-automatic fixtures where it requires no special attachments or other accessory equipment.

Advantages reported for the "Kon-Toor" wheel in automatic polishing include development of a fine finish on involved contours and maintenance of original contour through the working life of the wheel.

Construction is simple. The hub is a steel cage whose side flanges are joined by 16 rods, each supporting an elliptical tube. These tubes hold U-shaped packets of folded, coated abrasive sheets with grain on both sides. Burnishings are provided to fit standard drive spindles. Canvas side shields, which reduce wind and noise generated by the relatively open construction, complete the assembly.

Wheels are 17 inches in diameter, and from 2 to 7 inches in width.

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COSTS LESS THAN ACID-PROOF BRICK
4 TIMES STRONGER THAN CONCRETE
NEW CORROSION-PROOF SURFACING FOR FLOORS
COROCRETE
provides greater protection than conventional acid-proof floor materials . . . at considerable savings.
Recommended for use in chemical processing, food processing, plating and metal working industries, COROCRETE is quickly and easily applied over existing concrete surfaces . . . handles like cement topping.
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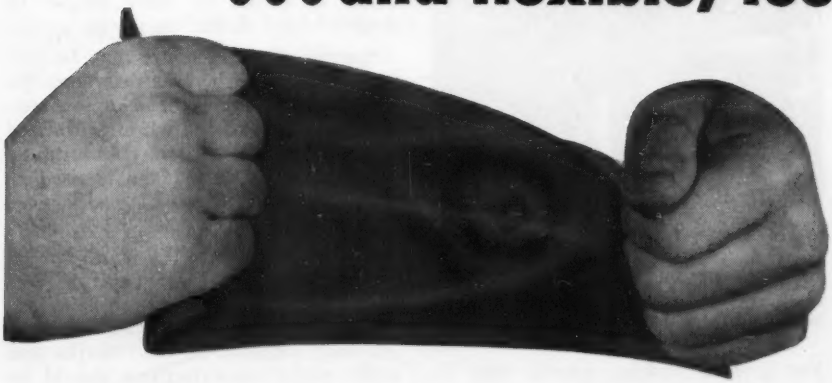
"218X" is TOUGH

. . . and flexible, too



Racks with Unichrome Coating 218X can take not only hard use but even abuse. So tough is this heavy duty flexible coating, it resists scuffing, won't tear or chip. It maintains sleek, smooth, tight protection in severest plating operations . . . rinses freely to minimize drag-in and drag-out problems.

Chemically, too, it's tough. Use this green, plastisol coating in all plating, cleaning and anodizing operations, even with vapor degreasing cycles . . . and you'll see service you didn't think possible.

Detailed information is available.

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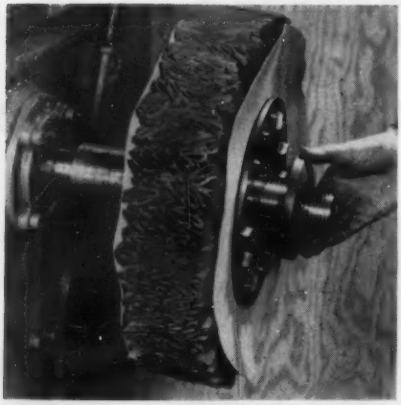

Fig. 1—This Kon-Toor coated abrasive wheel is being installed on spindle of a polishing machine.

For greater widths, wheels may be gauged. Replacement wheels are available for ready mounting on the original cage or hub. Abrasive cloth used is Durite (silicon carbide) or Metalite (aluminum oxide) in a grit range from 120 to 400. Recommended wheel speeds range between 1500 and 2400 revolutions per minute.

In use, the Kon-Toor wheel applies almost unbroken abrasive contact to the work. Flexibility of the wheel as a whole is varied by using single- or double-folded cloth.

Simple, slight contours may be polished with the wheel as delivered. To polish sharp angles or complex contours, the face of the wheel is dressed to the contour. Where the contour must be precise, a profile gage is used to transfer the contour of the work piece to a wooden block; the block, faced with coarse sandpaper, is then used to dress the Kon-Toor wheel accurately to this shape.

The wheel is fundamentally a polishing tool; removal of weld marks and other major imperfections should be done by the usual coated abrasive belt method.

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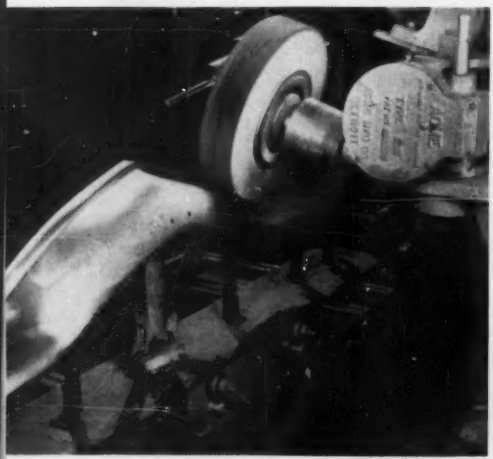

Fig. 2—Polishing wheel being used on a full floating head to polish surface of complete bumper.

Fig. 3—Kon-Toor polishing wheel being used to polish sharp contours of rolled and pressed edge.

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TIME, LABOR AND COSTS
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COMPLETE SYSTEM
AUTOMATION
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CLEANING AND FINISH-
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Cross Linked Vinyl Coatings

The Watson-Standard Company has announced a vinyl coating specifically formulated for roller coating.

Watson-Standard 13-809 White is a vinyl coating, designated as "cross linked" because of the interaction of the various components during the baking cycle. This coating is said to exhibit the good properties of vinyls plus the advantages of increased adhesion and less thermoplasticity.

Furnished at 40 to 42 per cent solids and a viscosity of 85 to 95 seconds (No. 4 Ford Cup), this 13-809 displays excellent coverage and coating qualities. The specified baking cycle is from 350 to 400 deg. F.

The coating shows outstanding tumbling resistance, process resistance, resistance to staining, excellent fabrication qualities, toughness and film integrity, the manufacturer states.

Available in colors as well as white, it is recommended for caps, closures, trays, canisters, strip coating and other similar applications where fabrication and chemical resistance are basic requirements.

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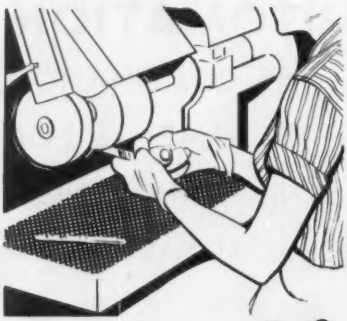
★ ★ ★

Anodized Coating Stripper

Since the disposal of chromic acid wastes in the anodizing industry is of major importance, Enthone, Inc., New Haven, Conn., manufacturer of chemical products for the metal finishing industry, has announced Deoxidizing Compound 89, a non-chromic acid containing material for stripping all types of anodic coatings from aluminum parts and racks.

Deoxidizing Compound 89 is alkaline in nature, and is used in water so-

PROTECT FINE PLATED SURFACES



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Neotex . . . the open pattern Neoprene rubber matting, protects highly polished finishes when used to line any surface where goods are worked on or in transit. In roll form, Neotex can be easily cut to any size or shape . . . it's rugged and long lasting, resistant to abrasives, caustics, heat, acids, oils, oxidation. Open pattern permits buffing compounds to settle. Available in a fine or coarse pattern. Write for complete information.

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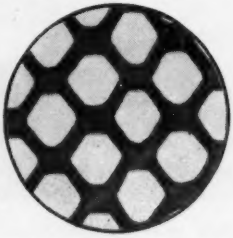

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New discovery solves acid copper plating problems... cuts plating costs

NEW ANACONDA

"PLUS-4" ANODES

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- **+1** no anode sludge
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- **+4** up to 15% more cathode deposit per anode

ANACONDA "Plus-4" Anodes are the result of a revolutionary research discovery which disclosed that controlled additions of phosphorus and certain other elements to electrolytic tough pitch copper produced an anode for acid copper plating with which sludging off of copper particles was completely suppressed. This phenomenon eliminated copper sludge, copper "build-up" in the electrolyte, and migration of copper particles to the cathode causing nodular roughness. It was also discovered that anodes of phosphorized copper corroded much more uniformly, leaving a small, compact "fish" – providing an additional saving in scrap loss. ANACONDA "Plus-4" Anodes are made in all standard sizes and shapes . . . cost no more than ordinary rolled anodes.

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For details on how you can get a test supply of "Plus-4" Anodes sufficient to fill one tank, write to *The American Brass Company, Waterbury 20, Conn.* In Canada: *Anaconda American Brass Ltd., New Toronto, Ont.*

***For use under Patent No. 2,689,216**

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AN
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lution at room temperature for removing these anodic coatings by immersion only. Average coatings are removed in a few seconds. The compound contains no ingredients which make waste disposal a problem.

For more data circle **14** on Reader Service Card

★ ★ ★

Viscometer

A viscometer which uses disposable cups to handle liquids during viscosity measurement has been announced by Gardner Laboratory, Inc., Bethesda, Md. The Gardner "One Shot" Viscometer consists of brackets and stands which hold two cups, one of which has an orifice in the bottom. The liquid which is being tested is brought to the desired temperature and is then allowed to run through the orifice of one disposable cup into the other disposable cup. The time which elapses while the liquid is draining is recorded, and this

Disposable Cup Viscometer

For Platers, Silversmiths, Jewelry Mfgrs., Makers of Watches, Clocks and Electronics and other metal finishers.

Supplied in straight or crimped brass, steel, nickel silver or stainless steel wire in sizes .0025 to .006 and in bristle, fibre or Nylon. Special sizes and shapes to order.

Write (Dep't. P) on your letterhead for catalog and price list.

DIXON & RIPPEL, INC. KINGSTON, N. Y.
ESTABLISHED 1856

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YOU *can rely on*

Randolph

for prompt shipment in any quantity of

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Lacquers • Enamels
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Clear Metal Finishes
Colored Lacquers
Clear S.G. for Metal
Texture Enamels
Specialized Production Finishes
Aircraft Finishes

RANDOLPH PRODUCTS CO.
CARLSTADT, NEW JERSEY

For more data circle **183** on Reader Service Card

Production and Quality Up!

WITH **SLY** CONVECTIONEERED OVEN

With an increase in business, the Interior Steel Equipment Co. has augmented their paint baking facilities. In doing this they have achieved economies in handling of work while maintaining and even enhancing the quality of their products.

They installed a Sly Convectioneered Oven, 45′ long, 9′ 6″ wide, 6′ 9″ high with semi "A" type sheet metal hoods at the exit and entrance ends to form an efficient heat seal. Beneath the oven is a self-contained 2,500,000 BTU per hour direct gas-fired heating unit.

As aids in achieving excellent finishes on the products are: (1) efficient air distribution over the work (2) temperature uniformity in the baking zone (3) correct exhaust conditions to maintain proper oven atmosphere, and (4) a low overall temperature gradient between supply and recirculation temperatures.

This installation is typical of the careful engineering that goes with all Sly Industrial Ovens. *May we discuss your requirements with you?*

THE W. W. SLY MANUFACTURING CO.

SINCE 1874

Visit Our Booth at the CHEMICAL SHOW Philadelphia, Dec. 5

4784 TRAIN AVENUE • CLEVELAND 1, OHIO

Atlanta • Birmingham • Buffalo • Chicago • Cincinnati
Denver • Detroit • Houston • Indianapolis • Jersey City
Los Angeles • Mexico City • Minneapolis • New York
Philadelphia • Rochester • San Francisco • St. Louis • Toronto

For more data circle 184 on Reader Service Card

time serves as a basis for calculation of the viscosity.

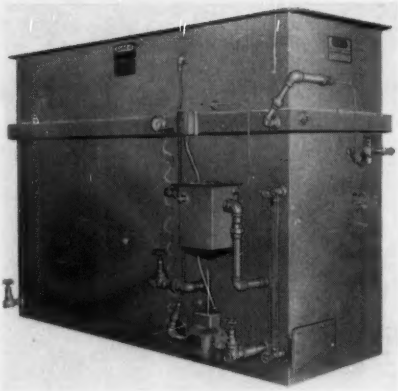
The method is said to be accurate within plus or minus 5 per cent. Cleaning of instruments used for viscosity measurement is eliminated, and error due to orifice wear is not possible, as a new cup is used each time.

For more data circle **15** on Reader Service Card

★ ★ ★

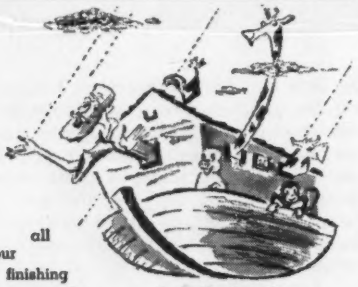
Vapor Degreaser

Model OP 2 Degreaser, recently introduced by the Circo Equipment Co., Clark (Rahway), New Jersey, embodies design features which are said to allow better vapor control and solvent reclamation. Condensate pan and condensing coil are recessed, providing unobstructed working area.



Model OP 2 Degreaser

The water control on this model is designed so as to use water only when needed. Placement of the coils in conjunction with this control eliminates condensation of water on the sides of



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J. Holland & Sons offers you the most comprehensive operation in the entire finishing industry. Because we maintain one of the world's largest in-stock supplies of polishing, plating and spray equipment, we can deliver merchandise immediately.

Get dependability, complete satisfaction and "one-stop" buying. Our engineering and technical staff is ready to assist you in solving special problems.

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leaders in finishing equipment for over half a century

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TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use over 6 years in light and heavy production.

- **Ready To Use—Just Add Water**
- **No Variance in Color**
- **Trouble-Free—Little Supervision Needed**
- **Low Cost—Additions only once a day**

Available in a variety of colors. Will match your sample.

Write for technical bulletin and prices.

TRUE BRITE CHEMICAL PRODUCTS CO.

Box 31, Oakville, Conn.

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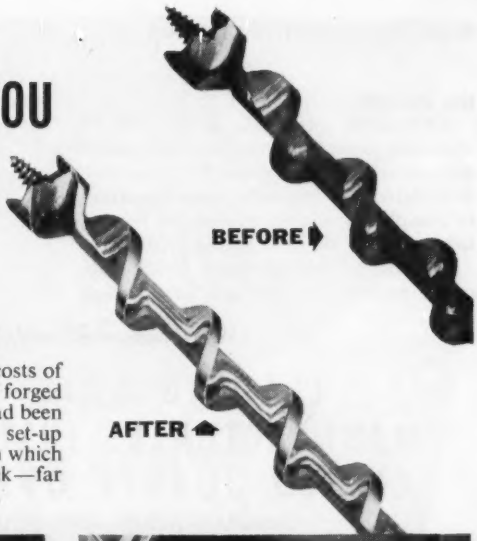
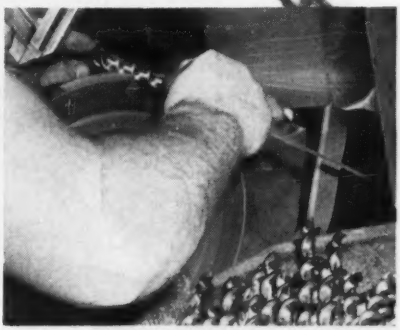
HOW WOULD YOU SOLVE IT?



1. PRODUCTION PROBLEM:

To increase production and cut unit costs of finishing crimps and grinding flutes of forged steel auger bits, Irwin Auger Bit Co. had been using grinding or hard wheels and set-up wheels in a costly three-step operation which produced only 50,000 units per week—far less than the company's requirements.



2. SOLUTION:

A 3M Representative showed this Wilmington, Ohio manufacturer how the 3M Method would grind and finish forgings in just one operation using a Grit 60 Electrocut Three-M-ite Cloth Belt, and produce a smoother, more even finish than was obtainable with set-up wheels.

From the world's largest Coated Abrasives Machine

PRODUCT OF 3M RESEARCH

3. RESULTS:

A 50% production increase. The 3M Method boosted weekly output to over 80,000 units—cut unit costs, too. And man hours for this operation were greatly reduced. A 3M Representative can help you solve your grinding and finishing problems, too. Write Minnesota Mining and Mfg. Co., Dept FH-95, St. Paul 6, Minn., for FREE booklet, "Grinding and Polishing Hand Tools with the 3M Method."

3M ABRASIVES

Made in U.S.A. by MINNESOTA MINING AND MFG. CO., St. Paul 6, Minn.—also makers of "SCOTCH" Brand Pressure-Sensitive Tapes, "SCOTCH" Brand Magnetic Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. Export Sales Office: 99 Park Avenue, New York 16, N.Y. In Canada: P.O. Box 757, London, Ontario.

For more data circle **187** on Reader Service Card

the cabinet.

All pump parts are fabricated of stainless steel. The rotor and end plates are nickel clad. A rotating magnetic field drives the impeller, thus the pump is completely sealed except for the intake and outlet, preventing leakage.

A built-in storage tank holds adequate reserve for flushing, in addition to the entire contents of the degreaser sump.

Working height has been reduced for easy operation.

For more data circle **16** on Reader Service Card

★ ★ ★

Protective Closures

A line of rubber and plastic protective closures for threaded parts, pipe and tubing ends has been developed by Ray A. Scharer and Co., 3000 East Grand Blvd., Detroit 2, Michigan.

Called Shurclose Caps and Plugs, the closures have four main uses: protect threaded connections against possible damage; prevent moisture or dust penetration; seal in gases and liquids; and mask pipe or tube ends from paint spray and preservative finishes.

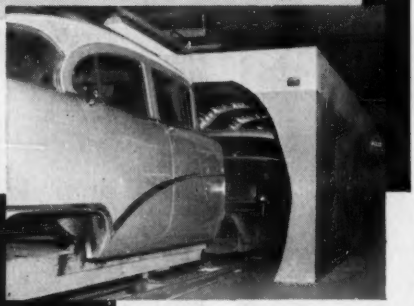
Shurclose Rubber Caps and Plugs are produced from synthetic rubber or, if required, from Neoprene, Hycar or natural rubber.

Shurclose Plastic Caps and Plugs are molded vinyl or polyethylene. They are impervious to most commercial gases and fluids. Plastic caps are designed for severe usage.

For more data circle **17** on Reader Service Card

LEADING AUTO MANUFACTURERS INSTALL CLEPCO QUARTZ OVENS

• Finds CLEPCO Quartz Paint Ovens require half the floor space and half the KW input of infra-red bulb ovens.



HERE'S WHY . . .

CLEPCO Quartz Paint Ovens are based on the use of special CLEPCO Quartz Heaters designed to emit that part of the heat spectrum most readily absorbed by paints.

Another major auto manufacturer reports that CLEPCO Paint Ovens are lower in original cost as well as in operating costs than the conventional gas fired convection ovens previously in use.

CLEPCO'S Complete Research Facilities are at your service to determine the most efficient quartz oven for your requirements.

SEND FOR COMPLETE INFORMATION

THE CLEVELAND PROCESS COMPANY

1965 EAST 57TH STREET • CLEVELAND 3, OHIO

For more data circle **188** on Reader Service Card

How Pittsburgh knotted brush construction provides

- **Better Balance**
- **Uniform Wear**
- **Better Cleaning**
- **Longer Equipment Life**

Because of their construction, Pittsburgh "Lightning" knotted sections have *exactly the same number of wires in every knot.* As a result, you get a brush with perfect balance—one that will wear uniformly and cause less bearing—destroying vibration in the machine that drives it!

What's more, the special type of wire used in these knots is the fastest cutting, with the longest life, that can be produced. Built for the toughest applications, "Lightning" brushes are perfect for cleaning welds, removing scale or rubber, or cleaning parts where penetration brushing is needed.

This is just one example of superior Pittsburgh construction, engineered for both general and specific applications. For details of the complete line, write for free Catalog No. 54-W. Address: PITTSBURGH PLATE GLASS CO., *Brush Div.*, Dept. V-9, 3221 Frederick Ave., Baltimore 29, Md.

PITTSBURGH

Power Driven

BRUSHES

BRUSHES • PAINTS • GLASS • CHEMICALS • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

For more data circle **189** on Reader Service Card

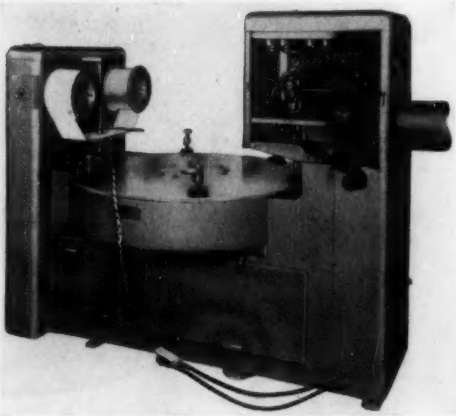
Paint and Wipe Machine

A machine that combines painting and wiping with only one loading of the part has been developed by Finish Engineering Company, Erie, Pa.

Basically, the Fin-E-Co Model 7000 Fill-&-Wipe Machine is a combination of a part-rotating spray painting machine, and an automatic paint wiper.

It has 6 holding nests, one being used for loading. The first indexing of the part is to the painting station, where it is raised into a mask, rotated, and sprayed with a band of paint that covers all depressed letters, numbers, and other debossed areas.

The part is then indexed to the wiping station, where it is again raised and spun into the towel which wipes it, removing all paint except from indented areas. The continuous roll towel may be washed and re-used.



Fin-E-Co Model 7000 Fill-&-Wipe Machine

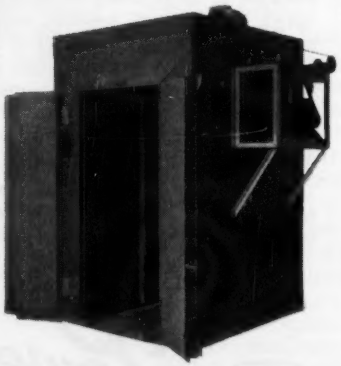
Indexing is by a positive Geneva action, powered by explosion-proof motor. Timing is by air.

The Fin-E-Co Model 7000 Fill-&-

Dry Finishes More Uniformly-Fast in ROCKWELL OVENS

- Electric • Gas • Oil or Steam
- Recirculation Heating
- Low Investment Cost
- Faster Processing
- Safety Control Features

18 truck- or rack-loading sizes and 6 bench and cabinet sizes to meet most of your heating needs. Also special batch and conveyor ovens of all types. Write for Bulletins.



ROCKWELL SINCE 1888 BUILT

W. S. ROCKWELL COMPANY

FURNACES • OVENS • BURNERS • VALVES • SPECIAL MACHINERY

2905 ELIOT STREET • FAIRFIELD, CONN.

Sales Representatives in Principal Cities

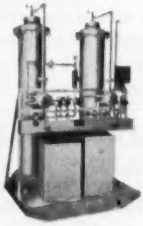
For more data circle **190** on Reader Service Card

FINISH IT BETTER...
PLATE IT BETTER...

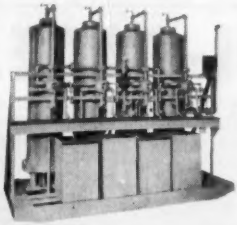
WITH

DEMINERALIZED WATER
PRODUCED BY
BARNSTEAD EQUIPMENT

Mixed-Bed Model, 50 gal./hr. Others to 2500 gal./hr.



2-Bed Model, 200 to 1000 gal./hr.



4-Bed Model. 30 to 1000 gal./hr

In rinsing, plating, make-up, anodizing, dye-baths, where Pure Water is needed, free from harmful minerals, manufacturers know that they can save money, reduce rejects, and attain better product control by using Barnstead Demineralized Water

The cost? As little as 5c per 1000 gallons. Operation is simple — easy. Set in place and connect your water service lines. No on-the-job assembly problems.

With a Barnstead Demineralizer you get the benefit of over 75 years of specialized experience in Pure Water — either demineralized or distilled — for Barnstead makes both types of Pure Water equipment. Write for Catalog #123.

Barnstead STILL & STERILIZER CO.
First in Pure Water Since 1878

12 Lanesville Terrace, Forest Hills, Boston 31, Mass.
New York Office: KIngsbridge 8-1557

For more data circle 191 on Reader Service Card

Wipe Machine can be furnished either to spin the part that is being wiped, or to reciprocate it.

For more data circle **18** on Reader Service Card

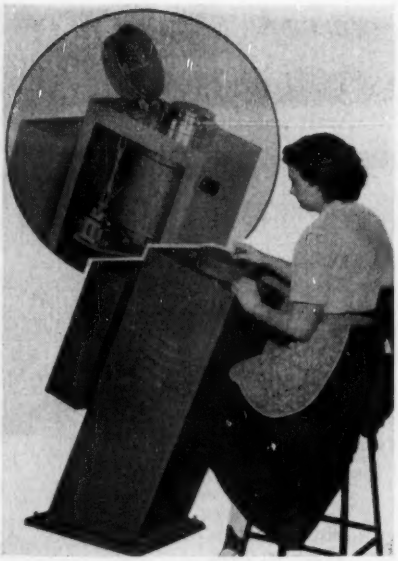
★ ★ ★

Angle-Mounted Speed Lathe

The Schauer Manufacturing Corp., Cincinnati 36, Ohio, has designed a speed lathe to accomplish a specific production requirement, to be exhibited for the first time by the Schauer firm at the Production Engineering Show, Booth No. 245, Navy Pier, Chicago, September 6-17.

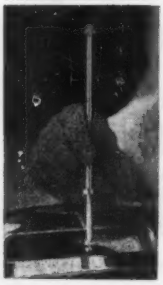
The Schauer speed lathe has been built with the pedestal inclined 20 degrees to provide maximum ease and comfort of operation. The work, held by a collet, is completely enclosed by a safety cover, contoured to the shape of the work. The machine cannot be started until the safety cover is in the closed position.

Operation sequence of the machine is as follows: work is placed on the holding fixture and the guard is closed. The operator actuates a control button and the part is rotated at slow speed for a pre-determined time. At the completion of the slow speed time, the machine automatically shifts to a high spindle speed for an additional pre-set time period, then stops. The operator lifts the guard and removes the work.



Angle-Mounted Speed Lathe

The work performed on the Schauer speed lathe shown above is the deburring and polishing of a small metal part. The inset shows the safety guard opened, exposing the work-holding fixture. The door on the pedestal is also shown removed to provide a view of the motor, control switch and timing



POCKET HANDI-GAGE

A MAGNETIC THICKNESS TESTER

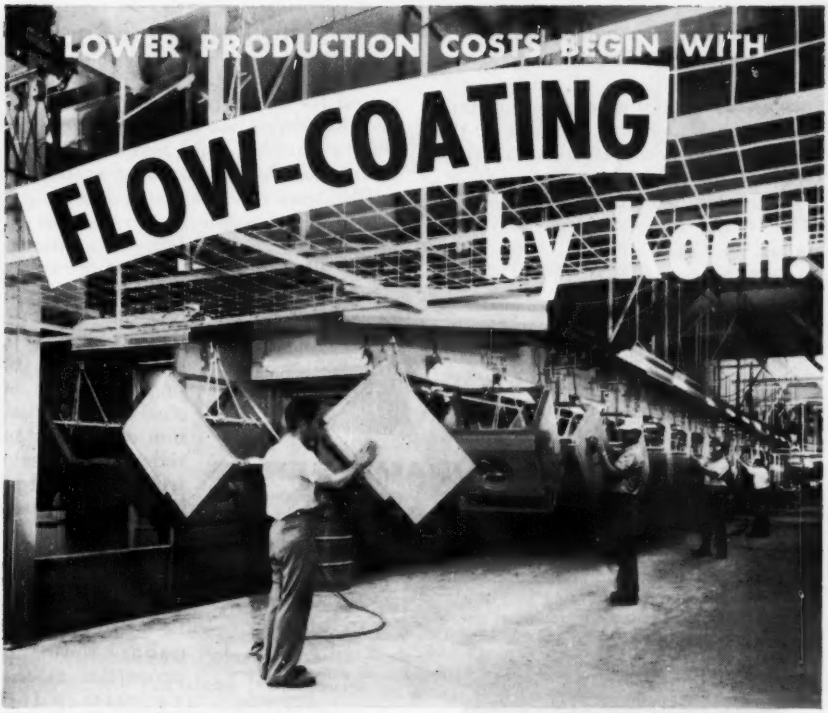
for electrodeposited, hot-dipped and painted coatings on steel. No bigger than a fountain pen, but what a job it does! Tests plated, painted, enameled, or plastic laminated coatings in SECONDS—in the lab or on the production line. Accurate, quick and easy to use.

WRITE FOR FULL INFORMATION

59 EAST 4TH STREET — NEW YORK 3, N. Y.

Paters Research CORPORATION

For more data circle **192** on Reader Service Card



KOCH BUILDS:

- *BAKING OVENS*
- *SPRAY BOOTHS*
- *METAL WASHING EQUIPMENT*
- *COMPLETE FINISHING SYSTEMS FOR BOTH WOOD AND METAL*
- *AIR MAKEUP SYSTEMS*

"If you hand spray it or dip it, you can flow-coat it better" with material savings of 50% and the elimination of indirect labor. These advantages can be yours now through "Flow-Coating by KOCH"!

Consult KOCH finishing experts and learn how profitably flow-coating can be adapted to your product and your present finishing set-up. The entire system — from layout through installation — is handled by KOCH on a single responsibility contract that assures peak performance at minimum cost. PHONE, WIRE OR WRITE TODAY!

WRITE FOR BULLETIN 9P-J7!

GEORGE KOCH SONS, INC.
EVANSVILLE, INDIANA

For more data circle 193 on Reader Service Card

device—all readily accessible for maintenance. Schauer speed lathes of this type also can be provided with chuck-type holding fixtures.

Further information may be obtained by writing Schauer Mfg. Corp., Cincinnati 36, Ohio.

For more data circle **19** on Reader Service Card

Acidic Deburring Compound

Oakite FM 184, a mildly acidic compound for barrel deburring, descaling, and derusting, has been introduced by Oakite Products, Inc., manufacturer of metal cleaning and finishing materials.

The material was specifically designed by the Oakite laboratories to replace raw acids in barrel operations, where alkaline materials and abrasives are impractical because of time limitations. It is also designed to improve color of steel after alkaline deburring; to remove heat scale from steel; and to brighten brass, either with or without the use of abrasive media.

Oakite FM 184 is said to have good foaming properties at the recommended concentrations of 1 to 3 oz./gal. It may be added dry to the burnishing barrel.

For more data circle **20** on Reader Service Card

★ ★ ★

Improved Sisal Buff

A treatment for sisal buffs that helps eliminate fraying and increases buffing compound absorbency has been developed by the American Buff Co., Chicago.

CUTS
finishing costs
80% OR MORE!
A REAL
BOTTLE-NECK
BREAKER
the NEW FUTURAMA SERIES
PRECISION BARREL FINISHING
Equipment Custom Styled for Modern Industry
...Will modernize and add exceptional efficiency to plant deburring and finishing departments. For high production needs or large work loads. Available in 3 model lines—with luxury features.
HINGED DOOR
with quick-acting
cam locks
Electronic
CONTROL PANEL
for absolute control
SWING-AWAY
HOOD for assured
operator safety
SPEED-D-BURR
CORPORATION
PRECISION BARREL FINISHING
MT-37
THE WORLD'S MOST COMPLETE LINE OF
PRECISION BARREL FINISHING EQUIPMENT & SUPPLIES
Write for catalogs on: FUTURAMA LINE • MITY-MITE
LINE • MEDIA AND COMPOUNDS • HANDLING EQUIPMENT
Service is our most important product... Use it!
SPEED-D-BURR CORPORATION
3613-C San Fernando Road, Glendale 4, Calif.

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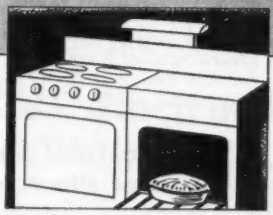
DONE TO A TURN

...with Stanley Silicones



When Taylor's new Dial Oven Thermometer needed a coating that would stand up to high oven heat, Stanley chemists cooked up just the right silicone enamel in three bright, fast colors that bat 1.000 in the hot stove league . . . one more example of a Stanley custom finish making a good product better. Maybe your product could profit, too. Why not write us for Free literature, at 31 Berlin St., East Berlin, Conn.

STANLEY CHEMICAL

LACQUERS
SYNTHETICS
VINYLS
ENAMELS

For more data circle **195** on Reader Service Card

The result of four years of research and experiment, this treatment adds a special adhesive substance to buffs which holds the sisal fibres closely together, yet does not materially change the buff's density to either excessive softness or hardness. In addition, the American Buff treatment also helps overcome the difficulty of holding buffing compound on sisal fibres. As a result, the company states, buffs treated by the process give improved buffing action and faster cutting speed.

For more data circle **21** on Reader Service Card

★ ★ ★

Detergent

Supersolv, a granular type industrial detergent composition developed and patented by Kelite Corporation, is formulated to remove petroleum oils and greases from both solid and porous surfaces. Oily soils are removed by displacement. Once removed, it is reported that they will not deposit even though the surface is not rinsed. Rate of soil removal is increased by heat, although the cleaner can be used cold.

Kelite Supersolv may be used in steam or vapor cleaning. Vapors are non-toxic, non-corrosive, and non-flammable. The material is said to be harmless to paint, brushes, and galvanized and aluminum equipment.

For more data circle **22** on Reader Service Card

Buffing Compound

A red oxide buffing compound, for producing a bright golden finish on copper or copper plate has been announced by Russell H. Burns Compound Co., Middlesex, N. J. Trademarked "Colorcopper," the compound is a combination of specially processed iron oxide and saponifiable wax. Cakes are molded in individual trays as a safeguard against breakage.

For more data circle **23** on Reader Service Card

★ ★ ★

Electrostatic Spraying of Plastisol

A process for electrostatically spray-coating vinyl plastisols on fabricated wire baskets, dish drainer racks, display racks and other wire goods on a production-line basis, has been announced jointly by Scientific Electric, Garfield, N. J. and the United Chromium Division of Metal & Thermit Corporation.

Electrostatic spraying of plastisol is said to be fast, and to produce a superior coating in terms of uniformity and appearance. The entire operation is conveyorized; the actual spraying is automatic.

The process makes use of "Ionic Guns" with newly developed "Atomic Nozzles," powered by a 140-K.V.P. ionic high potential power supply to spray an ionized "mist" of plastisol around the object to be coated. The

GLO-QUARTZ*
IMMERSION HEATERS
for
ALL ACIDS, ALKALIES, WATER, ETC.
GLO-QUARTZ ELEC. HEATER CO., INC.
WILLOUGHBY, OHIO
*Trademark Reg. U. S. Pat. Off.

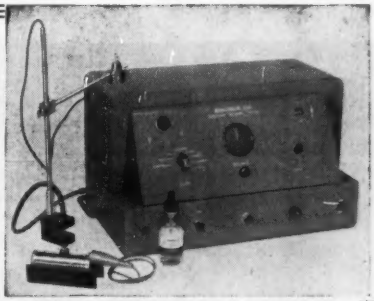
For more data circle **196** on Reader Service Card

Be sure of your

PLATING

THICKNESS

with the



KOCOUR Electronic Thickness Tester

There's no room for guessing plating thickness when you can have accurate readings quickly. The Kocour Electronic Thickness Tester determines the thickness of chromium, silver, tin, cadmium, zinc, brass, copper, nickel, lead, and other plating. Readings are direct . . . accuracy 90-95%. Write for further information . . . no cost, no obligation.

FREE! Get your reprint of "THICKNESS of ELECTRODEPOSITED COATINGS BY THE ANODIC SOLUTION METHOD" by C. F. Waite.

KOCOUR CO.
4814 S. St. Louis Ave.
CHICAGO 32, ILLINOIS

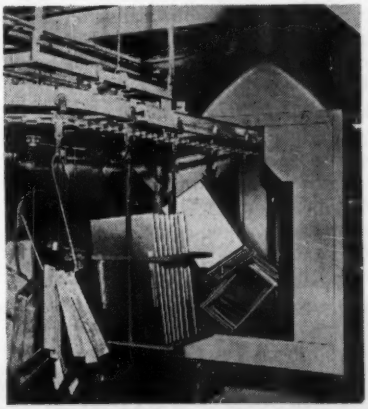
For more data circle **197** on Reader Service Card

this **INDUSTRIAL WASHING MACHINE** runs

3 TIMES FASTER

THAN OUR CLIENT EXPECTED

Prepared for a conveyor speed of 7 feet a minute, this manufacturer of component metal parts was amazed to find that his Industrial Machine produced clean work with a phosphate coating ready for painting at a speed of 21 feet a minute! It's one of 38 standard basic designs that can probably be made to fit your needs. If not, our engineers can design a machine that will do the job.

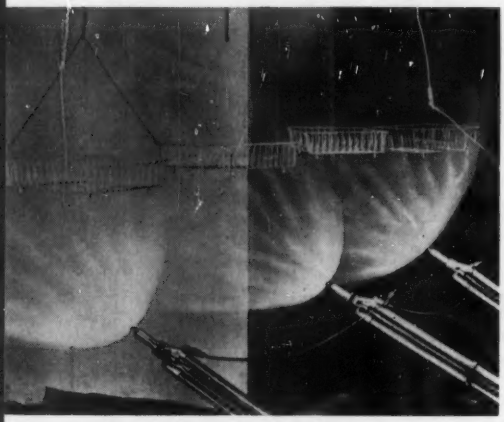


Get the full story—write Dept. P-1

ISC INDUSTRIAL Systems COMPANY

Exclusive Sales Agents For
Industrial Washing Machine Corp.
Matawan, New Jersey

For more data circle **198** on Reader Service Card



Wire baskets being sprayed electrostatically with plastisol.

"mist" is able to reach and deposit evenly over the entire surface (inside and out) of intricate wire goods. The equipment is an adaptation of the Scientific Electric standard line of ionic high potential spraying equipment. The plastisol was specially formulated by United Chromium for electrostatic spray-coating.

Production rate depends upon the number of guns used on the line—the more guns the faster the work rate. Each power supply can handle up to 12 guns; an average installation would utilize 4 guns.

For more data circle **24** on Reader Service Card

High Vacuum Pump

A high vacuum diffusion-ejector pump capable of removing 12½ pounds of air per hour (one million micron-liters per second) has been announced by the Consolidated Vacuum Corp., Rochester, N. Y.

Designated as the type KS-16,000 Diffusion-Ejector Pump, the unit removes air at a speed of 18,000 liters per second. Its wide performance range, from ½ to 2 million microns Hg pressure, permits diversified application.

For more data circle **25** on Reader Service Card

★ ★ ★

Rotary-Gravity Filter

Continuous full flow filtration of industrial fluids in limited floor space is featured by the Delpark Roto-Gravity Filter. It incorporates a permanent type filter screen for removal of particles to 0.002 inch in size and has a large flow capacity.

The unit is self cleaning through reverse flush principle operating on a time lapse sequence. Residue thus cleaned from bar stock type screen is removed by chain driven flights.

The Delpark Roto-Gravity Filter requires attention only for the removal of residue and sludge from the tote box under the carry-off shelf.

Sizes are available for capacities from 20 to 100 g.p.m.

For further information write to George L. Guymon, vice-president and

METABOND

MEANS *PROGRESS* IN RUSTPROOFING

METABOND is the only effective immersion or spray amorphous type zinc coating in the industry today.

METABOND withstands severe and consistent flexing and bending without chipping or breaking bond.

INTERNATIONAL RUSTPROOF CORPORATION

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MANUFACTURERS OF RUST PREVENTIVES AND CORROSIVE SOLVENTS

For more data circle **199** on Reader Service Card

Can you use this man in your business?

TOM CANNON, JR.

. . . If spray painting is a vital part of your business operation, we'll bet money you can.

Speaking of money, that's the best part in obtaining this man for your business because it doesn't cost you a dime. His name is Tom Cannon, Jr., one of Spee-Flo's qualified sales engineers. A finishing specialist, he has the technical know-how to improve quality control and reduce unit costs in your paint department.

It's all part of the Spee-Flo Company's policy, expert technical assistance and quality hot spray heaters tailored for your requirement.

At your request, Tom Cannon, Jr., or one of our staff of over twenty-five factory specialists, will roll up his sleeves and "go to work" for your firm without charge or obligation. He is prepared to demonstrate how the Spee-Flo hot spray process can cut production costs, and smooth out paint department "bottle-necks."

Your reply to this offer will receive our prompt attention. Write the **SPEE-FLO Manufacturing Corporation, 720 Polk, Houston 2, Texas.**

For more data circle **200** on Reader Service Card

Field Engineered For Ball Burnishing and Abrasive Tumbling

ESBEC

SERIES HD TUMBLING BARREL

The ESBEC Series HD are among the most ruggedly constructed welded steel barrels on the market.

ESBEC Tumbling Barrels may be used for *ball burnishing* as well as abrasive tumbling.

ESBEC tumbling barrel capacity ranges are from 7½ cubic feet to 45 cubic feet, with single or multiple compartments.

A size and design to fit your needs.

All controls are located at the front of the barrel making it safer and convenient for the operator.

Large door opening on the ESBEC barrel assures *fast* and *complete* dumping of the load.

ESBEC Tumbling Barrels are "field engineered," built by tumbling engineers for your most difficult tumbling requirements.

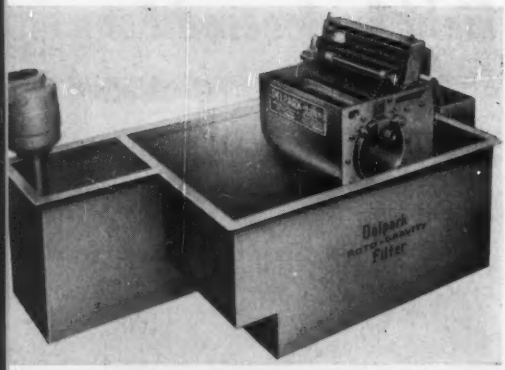
Write for literature and tell us something of your needs.

TUMBLING SALES & SERVICE CO.

18 BEECH ST. - - BYRAM, CONN.

Manufacturers of
ESBEC Color Identified Barrel Finishing Compounds

For more data circle **201** on Reader Service Card



Delpark Rotary-Gravity Filter

director of sales, Industrial Filtration Co., Dept. R-312, Lebanon, Indiana.
For more data circle **26** on Reader Service Card

★ ★ ★

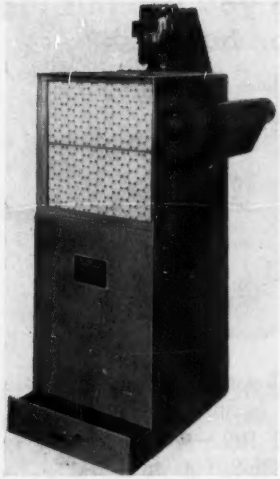
Dust Collector

Dust-Pak, a portable package dust collecting system, has been announced by Schmieg Industries, Inc., P.O. Box 4701, Detroit 34, Michigan, manufacturer of dust and fume eliminators and other industrial production equipment.

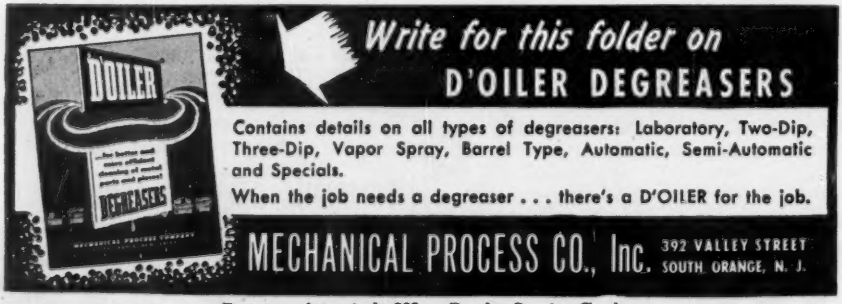
The unit is for use in small installations or on isolated machines in large plants. It is available with casters where flexibility is desired for special operations.

Dust-Pak extracts dust and other particles from the air by a combination centrifugal separation and filtration. It has a replaceable standard "throw-away" type filter. The manufacturer points out that the centrifugal action minimizes the dust load transmitted to the filter, adding to the length of serviceability.

Heavier particles are separated from the air and deposited in a drawer at the base of the unit for quick disposal. Dust-Pak is available in sizes from 400 to 1,000 c.f.m.
For more data circle **27** on Reader Service Card



Portable Dust Collector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When the job needs a degreaser . . . there's a D'OILER for the job.
MECHANICAL PROCESS CO., Inc.
392 VALLEY STREET
SOUTH ORANGE, N. J.
For more data circle **202** on Reader Service Card

Metallizing Lacquers

Two lacquers have been developed to be used in polystyrene metallizing for top and bottom coats, it has been announced by Schwartz Chemical Co., Inc., 326 W. 70th St., New York, N. Y.

The base coat lacquer is called BC-107. It prepares the surface of the plastic for permanent metallic deposition by providing a smooth, glossy finish that fills and covers cracks.

The bottom coat can be force-dried in one hour at 150 deg. F. According to the manufacturer, it has excellent adhesion and will not craze or embrittle after the aluminum is deposited and the top coat lacquer has been applied. The top coat is a clear, water-white lacquer called TC-101. It is specifically formulated for use as a protective coat after the metal has been deposited.

High gloss, good adhesion, and permanent flexibility are features of the top coat, the company states. The lacquer prevents the thin metallic silver or aluminum film from flaking off, protects it from abrasion, and gives it a lustrous finish. The top coat can be force-dried at 150 deg. F. in about 30 minutes.

Bottom coat BC-107 and top coat TC-101 can be applied by dipping or spraying. No addition of catalyst or thinner is necessary as both coatings are supplied ready to use.

For more data circle **28** on Reader Service Card

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

For further information on any product mentioned in this issue—use the READER SERVICE CARD inside front cover.

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News of the Industry

NEW PLANTS

Leon K. Lindahl, chairman of the board of directors of the **UDYLITE CORPORATION,** has announced an expansion and new building program.

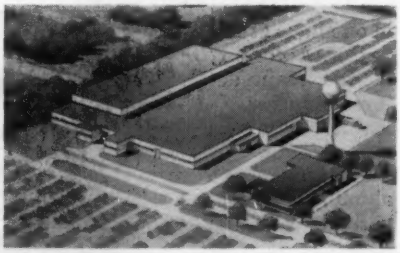
The new factory building will be located on Hoover Rd., just north of the Eight Mile Road in northeast Detroit.

The new building is being erected on the 23 acres on which all Udylite Detroit facilities will be located in the near future. The offices and laboratories of the Udylite Research Corporation are already on this site.

The future buildings including the Customer Laboratories Building and the Administration Building will be placed in front of the Research Building.

The Factory Building will have a manufacturing area of 160,000 square feet with a factory office area of 8,000 square feet. One third of the manufacturing area, approximately 50,000 square feet, is provided with 30 feet head room to take care of the increasing height of Udylite built equipment.

Udylite has also a new New York office and warehouse in the process of construction. The new warehouse will double the



Architect's perspective of new Udylite factory building

Leon K. Lindahl, chairman of the board of directors of the Udylite Corporation, is shown breaking ground for a new factory building to be located in Detroit, Mich. With Mr. Lindahl are C. H. Reeme, president of the Udylite Corporation on his right, and L. V. Nagle, executive vice president of the Udylite Corporation on his left. Also in the picture is W. J. Cluff, president of F. B. Stevens, Inc., the wholly owned subsidiary of the Udylite Corporation.

present capacity and provide the much needed additional office space. The building will include new customer service laboratories and new show rooms. In addition to the two loading docks, the New York warehouse will have a pickup dock for customer convenience. The new location is in Long Island City, about a mile and a half from the present location.

The Chicago office also has a new warehouse and office under construction. The new location will give the Chicago district more than twice the present floor space. It also will have improved offices and customer service laboratories. The new location is on the west side of Chicago.

It is expected that these constructions will be completed and that the new buildings will be occupied by Udylite personnel and facilities by January 1st, 1956.

★ ★ ★

A combined general office, research and distribution center will be established in Rahway, New Jersey, by **METAL & THERMIT CORPORATION**, H. E. Martin, president of the corporation has announced. Located on a 17-acre tract on Rahway Avenue, it is scheduled for completion in April, 1956.

At that time the executive offices will also be moved to new quarters at 100 Park Ave., New York City, to provide more space for future growth, Mr. Martin said.

The new center at Rahway will include a general office building, a distribution warehouse and a central steam plant as well as the company's existing Research facility, which is being expanded.

The new office building, a two-story, 80 by 180 foot structure, will house approximately 200 general office employees.

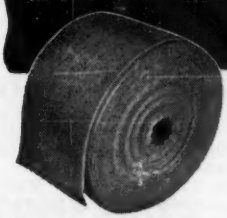
The warehouse building, a one-story structure of 10,000 square feet, will provide storage and distribution facilities for the products of all Metal & Thermit divisions: welding materials, industrial chemicals, ceramic materials and the plating and coating products of the United Chromium Division.

★ ★ ★

Production has started at the new plant of the **DETREX CORPORATION** in Bowling Green, Ky. The new plant will produce the Detrex line of drycleaning equipment.

The production area in the Detrex Detroit plant, formerly devoted to the manufacture of drycleaning equipment, will be used to expand the production facilities

For Dust Free Finishes!
BOND TACK CLOTH



IN ROLLS
Cut off any size piece to use as needed.

IN BULK
Cut and folded. Ready to use.

STAYS SOFT AND TACKY — A SPECK-FREE FINISH EVERY TIME

Now Available in Rolls or Cut Bulk—White or Gold In Three Different Types of Cloth

Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36" wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up!

The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" for ease of handling. ALL BOND TACK CLOTH is *Spontaneous Combustion Proof, Lint-Free* and *Wax-Free*. Gives a sparkling speck-free Finish *every time*. Clean and sanitary. No waste.

TRY THEM and COMPARE RESULTS. Samples Gladly Sent Upon Request.

BOND CHEMICAL PRODUCTS CO.
"The Tacky Wiper Specialists"
2639 N. CLYBOURN AVE. CHICAGO 14, ILLINOIS

ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES —144 to the Carton

A WARRANTY OF SATISFACTION IN EVERY CARTON

For more data circle **204** on Reader Service Card

New Detrex Plant in Bowling Green, Ky.

of industrial equipment — washers, degreasers, and other equipment.

The Detrex Corporation had its beginning in 1920 in a small garage in Detroit. At that time the corporation (then known as Rex Products and Manufacturing Co.) started producing an alkali cleaner for industry. The founders of the corporation, Robert A. Emmett, Sr., and A. D. Crandall spent their days selling the alkali cleaner and nights mixing the ingredients.

In 1921 the company brought out a liquid rust remover. Soon a substantial number of Detroit's auto factories were using this product and the young company began to prosper.

A new cleaning process for the metal working industry was perfected in 1924. This process was known as the spray cleaner method. It consisted of spraying a mixture upon an automobile body which was then placed in an oven. The cleaner absorbed the rust and oil and grease literally fell off. By 1930 a large portion of automobile bodies built in the United States were cleaned by the Detrex spray cleaner method.

However, a major bottleneck in American industry was how to clean metals fast enough to keep pace with other manufacturing advances. Detrex found the answer to be solvent degreasing. In 1937 Detrex was issued the original patents covering the stabilization of chlorinated solvent and solvent degreasing became a reality. Thus Detrex successfully entered the chemical field producing the metal cleaning chemicals to go along with the line of metal cleaning equipment manufactured by the company.

★ ★ ★

DIESEL CHEMICAL CO. has announced the removal of office and plant facilities to new and larger quarters, located at 578 Carroll St., Brooklyn 15, N. Y. Service and materials will now be supplied from this location.

★ ★ ★

THE W. W. SLY MANUFACTURING COMPANY, Cleveland, has expanded engineering and service facilities in the New England area with the opening of a new branch at 292 Worthington St., Springfield, Mass. **JOSEPH SHARKEY** serves as district sales engineer in handling the Sly line of dust control systems, blast cleaning equipment, tumbling mills and industrial ovens.

Founded in 1874, The W. W. Sly Manufacturing Company is a major manufacturer of dust filter equipment. Other products include tumbling mills, air blast equipment and ovens for foundry and industrial applications.

★ ★ ★

ALLIED RESEARCH PRODUCTS, INC., Baltimore manufacturer of the Iridite line of chromate conversion coatings for non-ferrous metals and ARP plating chemicals, has announced the establishment of warehouses in Cleveland, Ohio; Detroit, Michigan; and Chicago, Illinois. The addition of these depots is part of a continuing program to locate warehouses

—It's
New-Penny Bright!

COP-BRITE

NEW, BRIGHT COPPER PROCESS

A One-Material Brightener

FOR ALL BARREL AND STILL CYANIDE SOLUTIONS

- Yields a faster, brighter finish
- Produces a softer, smoother deposit
- Eliminates cyanide fumes
- Provides greater economy

Details on Request

JELCO FINISHING EQUIPMENT CORP.

153 East 26th Street, New York 10, N. Y.
LExington 2-3055

For more data circle 205 on Reader Service Card

in strategic industrial areas so that manufacturers in those areas can obtain shipments of both Iridite and ARP products without delay and on a regularly scheduled basis.

★ ★ ★

METAL & THERMIT CORPORATION has announced the establishment of new sales headquarters for the Pacific Coast Region in the Los Angeles area. The company has moved western headquarters into a new warehouse and office building at 1926 Maple Ave., El Segundo, California.

The new building will provide warehousing facilities for the products of all Metal & Thermit divisions: welding materials, industrial chemicals, ceramic materials and the plating and coating materials of the United Chromium Division.

The office space will house the Pacific Coast Regional sales headquarters personnel, under the direction of **E. E. ANDERSON,** vice-president and general manager for all West Coast operations.

The Los Angeles facility is in charge of **R. E. COLLINS,** who will directly supervise the operation of the warehouse and will be responsible for chemical, ceramic and United Chromium Division sales. The new location wi.. also be headquarters for welding sales personnel for the West Coast Region.

Erection of the new facilities was made necessary by the expansion of West Coast activities, Metal & Thermit states. Selection of Los Angeles as the base for western operations will enable the company to provide better service for customers in the rapidly growing southern California industrial area. The building will contain 11,000 square feet of floor area.

COMPANIES

The appointment of **MAPLEWOOD COMPANIES,** Maplewood, N. J., as direct factory representatives for the **PACKER MACHINE COMPANY** has been announced. Maplewood Companies, located at P. O. Box 113, Maplewood, N. J., has been established in this territory for several years, under the direction of **DONALD J. WAHLER.** The concern has extensive experience in aiding manufacturers in solving finishing problems. Packer Machine Company makes automatic polishing, buffing and deburring equipment.

About 40 representatives of industries in the eastern United States and Canada as well as a customs official from India have participated in a color measurements course sponsored jointly by **UNION COLLEGE** and the **GENERAL ELECTRIC COMPANY INSTRUMENT DEPARTMENT** at Lynn, Mass.

The course, two weks in duration, was conducted by some of the nation's leading color-measurement authorities. Classes were held in the Physics Department at the college.

Basic instrument for the course was the G.E. recording spectrophotometer, a precision instrument for measuring color.

★ ★ ★

THE WYANDOTTE CHEMICALS CORPORATION booth at the Industrial Finishing Exposition featured the solving of several problems which often contribute to defective plated coatings.

1. Cleaner not free rinsing.
2. Incomplete oil and grease removal.
3. Etching from cleaner.
4. Buffing compound not removed.
5. Poor smut removal.
6. Exhausted cleaner.

Actual plated panels were displayed which illustrated both the defective result and its prevention. Recommendations for specific cleaning and plating operations may be secured from local Wyandotte representatives, or from the home office in Wyandotte, Michigan.

Robert J. Racine, left, manager industrial sales, J. B. Ford Division of Wyandotte Chemicals, and Stephen O. Johnson, a Cleveland Wyandotte Chemicals Industrial Department representative, explain action of Wyandotte metal cleaners in the solution of plating problems.

A material designed to strip zinc chromate primer from aluminum; an acidic barrel finishing compound; and an alkaline derusting and heat scale removing compound will be featured by **OAKITE PRODUCTS, INC.**, at the Production Engineering Show in Chicago, September 6 through 16. Oakite will occupy Space No. 652.

The company will also exhibit materials for tank, barrel, machine, electro- and steam cleaning; machining and grinding; pickling; rust prevention and removal; paint stripping; and paint spray booth water treatment, as well as the Oakite CrysCoat Processes for iron and zinc phosphatizing.

F. J. McNally, Chicago division manager, will be in charge of the booth. Technical service representatives A. A. Becker, R. J. Becker, T. A. Sailor, K. J. Birdwell and E. G. Olson will attend.

★ ★ ★

BARRETT VARNISH CO. has announced the transfer of **RUSSELL F. LOOMIS** to the Florida territory, with headquarters at P.O. Box 67A, Route No. 2, Maitland, Florida. He has been employed as a technical sales and service man in the Chicago area for 22 years. He will have at his disposal a laboratory equipped to work out coating problems that occur in his territory, in addition to the facilities of the Barrett Varnish Company main laboratory.

Telephone collect for free brochure on

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with

McKeon's "Liquid Sulphur"

Economical, fast, non-electrolytic.

Sulphur Products Co., Inc.

228 McKEON WAY GREENSBURG 6, PA.

For more data circle 207 on Reader Service Card

Angelo Lazaro, president of the Hardwood Line Manufacturing Co., Chicago, Ill., shown in the Hardwood Line booth at the Industrial Finishing Exposition, in Cleveland, Ohio.

★ ★ ★

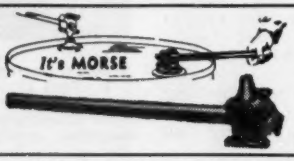
CARBORUNDUM ABRASIVE WORKSHOP, a mobile coated abrasive demonstration unit, has returned to Niagara Falls for overhauling and refitting. Rapid advances have taken place in the coated abrasive industry during the past 22 months the show has been on the road, hence the Workshop will have some of its abrasive belt machines replaced with new machines and new abrasive belts that incorporate the very latest advances in coated abrasives.

The Abrasive Workshop has traveled over 24,000 miles in 44 states and over 10,000 visitors from customer plants have come aboard during the 1,157 demonstrations throughout the nation. Although in action less than two years, the great strides in coated abrasive belt applications have made it necessary to install new equipment, remodel and put a new show on the road.

Send NOW for this FIT-ALL

DRUM PLUG WRENCH

Instantly loosens, tightens 95% all plugs or bungs in steel drums. Has 16" extra-strong steel tubing handle. Wgt. only 2 lbs. Order 1 or more today!



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SATISFACTION GUARANTEED.... **$3.30**

Non-sparking type $5.10

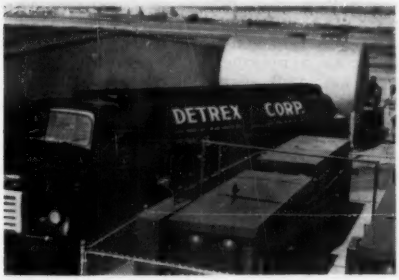
Plus Parcel Post

MORSE MFG. CO., Inc.

762 W. Manlius St., E. Syracuse, N.Y.

For more data circle 206 on Reader Service Card

The use of trichlorethylene as a metal cleaning solvent has made such rapid progress in industry that many plants are using bulk buying methods.



Tank truck refilling a reservoir used for storage of trichlorethylene metal cleaning solvent.

A large tank is used for storing the solvent, and portable tanks equipped with pumping devices are filled from the main storage tank and moved directly to the work-cleaning area on lift trucks.

★ ★ ★

Gifts totaling more than 300,000 dollars for educational grants to colleges and universities for the advancement of science and engineering have been announced by **THE DOW CHEMICAL COMPANY.** Allocations have been made to various institutions throughout the country for the academic year 1955-56.

In announcing the aid-to-education program, Dr. Leland I. Doan, Dow president, said that although the company has been providing financial assistance in the field of higher education for many years, the program has been largely exploratory until recent years.

"Dow Chemical recognizes there is a growing need for industrial assistance to colleges and universities," Dr. Doan said. "As a result, our aid-to-education program has increased steadily over several years, with the 1955-56 grants substantially higher than amounts allocated in previous years.

"Our company takes the position that industry has an obligation to society to help support education as an important instrument in industrial and cultural progress. Besides, Dow has a vital stake in educational development and the maintenance of high standards of teaching because our company, along with other industrial concerns, looks to our schools for a continuous flow of trained people to fill technical and other positions."

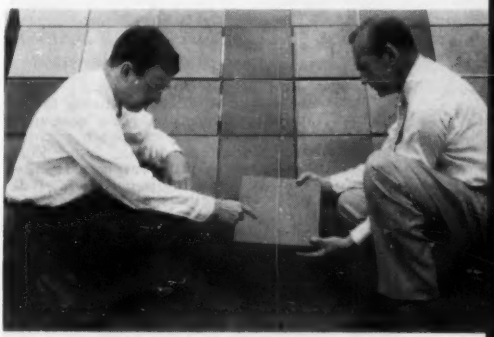
★ ★ ★

Winner of the first Supersheen award for the largest total dollar savings with **ALMCO** barrel finishing equipment is the **LE ROY MACHINE COMPANY,** Le Roy, New York.

Savings reported by Le Roy were accomplished by the installation of one Supersheen Fixture Barrel, used for deburring compressor rotor discs for jet aircraft.

As winner of the quarterly 100 dollar award, Le Roy is eligible for the 250 dollar annual prize which is awarded to the company making the greatest total dollar saving over the 12 month period.

Almco's new contest starts Sept. 11 and ends Dec. 31. It has been arranged so that companies of every size will have a fair chance to compete; a 100 dollar award will be given for the company reporting the greatest percentage of saving from barrel finishing a part as compared to former methods. There also is an annual 250 dollar award for this division.



J. H. Giles, Jr., Porcelain Enamel Institute research associate at the National Bureau of Standards and D. G. Moore, Enameled Metals Section, National Bureau of Standards, are shown as they examine porcelain enamel specimen panels atop the Industrial Building at the National Bureau of Standards in Washington. The weathering test specimens are tested and inspected on regularly scheduled intervals for resistance to weather exposure. Test sites are in various geographical locations to study effects of different conditions of climate and atmosphere.

Each contestant who returns a completed entry blank will receive an attractive carry-type food and drink cooler. Awards are made either in the name of the company or the finishing personnel involved.

Entry blanks for the new contest period can be obtained by writing Almco, Albert Lea, Minnesota.

★ ★ ★

A view of part of the Udylite display set up in Cleveland Public Auditorium during the Industrial Finishing Exposition. This section of the booth was used to display photographs of full-automatic plating machines, Rigid Koroseal Fittings, Duriron Equipment, anodes, plated parts, and for conducting a Zero-Mist demonstration. Other sections of the booth displayed electrical and barrel plating equipment, the new Udylite Automatic Barrel Plater, and the Handiplater.

NEW POSITIONS

Executive Vice President **WILLIAM P. DRAKE** has succeeded **GEORGE B. BEITZEL** as president of the Pennsylvania Salt Manufacturing Company, the latter has announced. Mr. Beitzel will continue his association with the company as a member of the board and in addition, will serve as chairman of the board of the Pennsalt International Corporation, a subsidiary. He joined the company in 1930 as a product sales manager and became chief executive in 1949.

★ ★ ★

L. V. Nagle, executive vice president of the Udylite Corporation, has announced appointments in the Udylite Division as follows:

L. EUGENE DRURY has been named facilities manager in charge of Udylite supplies business, maintenance of buildings and equipment, supervision of new buildings and supervision of transportation including truck and car fleets in the Traffic Department.

WILLIAM J. BLASHILL has been named manager of manufacturing with the responsibility of manufacturing, quality control and delivery of all Udylite equipment.

LOUIS J. MINBIOLE, JR., has been appointed sales manager of the Udylite Division of the Udylite Corporation. Before coming to Udylite in 1946, he worked with Buick Motor as a research engineer. He served Udylite as a sales engineer until 1953, when he came into the Detroit office as assistant sales manager of the Udylite Division. Mr. Minbiole is a past president of the Saginaw Valley Branch of the American Electroplaters Society.

CHEMSTEEL CONSTRUCTION COMPANY, INC.
301 Chemsteel Bldg., Walnut St., Pittsburgh 32, Pa.

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of processing & storage tanks & flooring in
☐ Steel Plant ☐ Chemical ☐ Textile ☐ Food

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COMPANY.....
ADDRESS.....
CITY.....ZONE.....STATE.....

For more data circle **209** on Reader Service Card

LANLY
FINISHING OVENS
THE LANLY COMPANY 760 PROSPECT AVE
CLEVELAND, OHIO
WRITE FOR INFORMATION AND LITERATURE

For more data circle **208** on Reader Service Card

Metal & Thermit Corporation has announced two new sales appointments in the Electroplating and Coating Sales Department which now operates as the United Chromium Division.

HENRY MAHLSTEDT has been named manager of sales of the department. He has been connected with associated companies of Metal & Thermit since 1927, and for the past seven years was sales manager of the plating department of United Chromium, Incorporated.

DONALD R. MESERVE becomes assistant manager of sales of the Electroplating and Coatings Department, assisting Mr. Mahlstedt. He has served with Metal & Thermit associated companies in several capacities since 1942, most recently as sales manager of the organic coatings department of United Chromium, Incorporated.

GEORGE C. BETZ has been appointed manager of sales, Chemical & Metals Department, Metal & Thermit Corporation. In his new post he will manage sales activities for the company's industrial chemicals and plating materials, ceramic products and metals and alloys. Mr. Betz has been associated with Metal & Thermit since 1944 as sales manager of the ceramics department.

JOHN A. PETERSON, JR., ceramic engineer, has joined the company's ceramic service staff.

WILLIAM C. CUNTZ has been named assistant manager of sales, Welding Department. He will assist Robert T. Brown, manager, in sales of Thermit welding materials and equipment.

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Robert M. Burford

ROBERT M. BURFORD, district sales manager of the Pennsylvania Salt Manufacturing Company, has transferred his headquarters from Buffalo to Pittsburgh. Representing the metal processing chemicals department, he is responsible for the supervision of sales and service activities in western Pennsylvania, eastern Ohio and New York. His new address is 228 Lebanon Ave., Pittsburgh, Pa.

Dr. C. E. Kircher

Dr. W. L. McCracken, director of research and development for the Detrex Corporation of Detroit, Michigan, has announced the appointment of **DR. C. E. KIRCHER** as manager of research.

Dr. Kircher has been a member of the Detrex research staff since October of 1952, and previous to that, was associated with the Du Pont Company in Delaware and Hanford, Washington. He was a professor and chairman of the Department of Chemical Engineering of Rose Polytechnic Institution.

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CHARLES A. WALLACE has been appointed manager of the Industrial Filtration Division of the United States Hoffman Machinery Corporation, according to an announcement by Revis L. Stephenson, vice president.

The company's industrial filtration division manufactures flotation units, precoat type pressure filters, disc filters, magnetic separators, petroleum solvent stills, suction filters and other specialized equipment.

★ ★ ★

Stanley S. Krentel

STANLEY S. KRENTEL has been elected vice president and sales manager of MacDermid Western, Incorporated, Ferndale, Michigan, a wholly-owned subsidiary of MacDermid, Incorporated, of Waterbury, Connecticut.

Mr. Krentel is a chemical engineering graduate of Michigan State University and has been with MacDermid for 10 years, most recently as manager of the Michigan sales territory.

The appointment of **J. O. SLAYBAUGH** as division manager of The Diversey Corporation Cleveland Division has been announced by W. E. Noyes, vice president in charge of sales. Mr. Slaybaugh joined Diversey's sales staff in 1941.

The Diversey Corporation manufactures specialized cleaning and sanitizing compounds for the metals industry.

MEETINGS

The **AMERICAN HOT DIP GALVANIZERS ASSOCIATION, INC.** will hold the **1955 SEMI-ANNUAL MEETING** on Thursday and Friday, September 29 and 30, at the Sheraton-Belvedere Hotel, Baltimore, Maryland, Association secretary-treasurer Stuart J. Swensson has announced.

The two-day conference is expected to attract the leaders in the hot dip galvanizing industry. Highlighting the meeting will be the Problems Clinic Session which has become an outstanding open forum discussion on the hot-dip galvanizing process and plant operations. Members have found the techniques and information exchanged at these sessions extremely valuable and practical.

The Speakers' Session of the meeting will feature a specially prepared motion picture film "Automation As Applied to Centrifugal Galvanizing" by the Malleable Iron Fittings Company of Branford, Connecticut, accompanied by a descriptive paper by Donald F. Sawtelle, metallurgist of this member company; a paper entitled "Observations of European Galvanizing Techniques" by Kenneth S. Frazier, chief research engineer of Detroit Steel Products Company, Detroit, Michigan; and a paper on "Abrasive Blasting Techniques and Advances" by George F. Jones, market research engineer, Wheelabrator Corporation of Mishawaka, Ind.

Several Association standing committees will present progress reports to the membership indicating the work being done on various projects.

Included in the social events of this meeting will be a sightseeing bus trip for the ladies that will include a tour of Baltimore and Fort McHenry, the birthplace of "The Star Spangled Banner;" and the U. S. Naval Academy at Annapolis, with lunch served at Carvel Hall in Annapolis. There will also be a cocktail reception and banquet on Thursday evening.

According to Mr. Swensson, attendance outside the membership of the Association is by invitation only, which, he states, may be extended to those concerns operating a hot-dip galvanizing facility if a request is made in advance.

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Exhibit space in the **PAINT INDUSTRIES' SHOW OF 1955,** to be held at the Hotel Statler, New York City, October 3, 4 and 5 has been completely sold out. The show will be held in conjunction with the **33RD ANNUAL MEETING** of the **FEDERATION OF PAINT AND VARNISH PRODUCTION CLUBS.**

The announcement was made by P. J. Whiteway, Jr., chairman of the Federation's Show Committee. Mr. Whiteway stated that the sellout assures those attending the Annual Meeting of the Federation an excellent presentation of technical advances in those industries supplying the paint, varnish, printing ink, and allied industries. The technical advances may relate to new products, new knowledge relating to existing products and their uses, or existing knowledge which is not generally available.

Anticipating a record-breaking attendance, the Show Committee has scheduled the Paint Show to be open two evenings. This arrangement will allow a maximum number of visitors to see the Show without missing any of the technical sessions. The daily viewing hours of the Show will be as follows: Monday, October 3rd—1 P.M. to 9 P.M., Tuesday, October 4—9 A.M. to 5 P.M., Wednesday, October 5th—1 P.M. to 9 P.M.

As in previous years, admission to the Paint Industries' Show will be limited to those registering for the Annual Meeting of the Federation. A registration badge will be required for admission to both the technical sessions of the Federation and the Paint Industries Show.

PAINT MIXER

MIRACLE PAINT REJUVENATOR

All paint restored to original consistency without opening the can.
2 minutes per gallon.

MIXERS AVAILABLE
¼ PT. to 55 GALS.

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127 E. 9th St., St. Paul 1, Minn.

5 GAL. MODEL

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TRAINING COURSES

Brooklyn, N. Y. **BROOKLYN EVENING TECHNICAL HIGH SCHOOL.** Instructor: Louis Serota, 4495 Kings Highway, Brooklyn, N. Y.

Chicago, Ill. **ILLINOIS INSTITUTE OF TECHNOLOGY.** Instructor: J. M. Andrus, 3701 N. Ravenswood Ave., Chicago, Ill.

Cleveland, Ohio. **JOHN HAY HIGH SCHOOL.** Instructor: John B. Winters, 24324 Smith Road, Westlake, Ohio.

Hartford, Conn. **STATE TRADE SCHOOL.** Instructor: Harry Sanders, 32 Olive St., Newington, Conn.

Los Angeles, Calif. **UNIVERSITY OF CALIFORNIA EXTENSION DIVISION.** Instructor: Mitchell Raskin, 3034 Greenfield Ave., Los Angeles, Calif.

Newark, N. J. **NEWARK BRANCH, A. E. S.** For information contact Dr. Dodd Carr, Bart-Messing Corp., 229 Main St., Belleville 9, N. J.

New Haven, Conn. **NEW HAVEN COLLEGE.** Instructor: Edward F. Foley, 442 Elm St., New Haven, Conn.

Philadelphia, Pa. **TEMPLE TECHNICAL INSTITUTE.** Instructor: Dr. Samuel Heiman, 5155 Westford Rd., Philadelphia, Pa.

Providence, R. I. **CENTRAL SENIOR HIGH SCHOOL.** Instructor: Joseph A. Smith, Jr., 116 Wyoming Ave., Warwick, R. I.

Providence, R. I. **UNIVERSITY OF RHODE ISLAND EXTENSION SCHOOL.** Instructor: Louis I. Kramer, 168 Gallatin St., Providence, R. I.

Stroudsburg, Pa. **KUSHNER ELECTROPLATING SCHOOL.** Instructor: Joseph B. Kushner, 115 Broad St., Stroudsburg, Pa.

★ ★ ★

The **JOSEPH B. KUSHNER ELECTROPLATING SCHOOL** has announced the availability of several home study courses for beginners as well as advanced students of electroplating.

The elementary course is entitled "Electroplating Know-How," and is a general, basic and comprehensive course covering every phase of electroplating and metal finishing. The minimum educational requirement for taking the course is the equivalent of a grammar school education. A diploma is awarded.

A more advanced course is titled "Modern Hard Chromium Plating," and is intended for those who have completed the basic course or have a college education or the equivalent of a high school education and three years of practical experience in the field. The course covers in detail every phase of the subject, from basic metallurgy to control and operation of plating baths. A certificate is awarded to those completing the course.

A short course on "Water and Waste Control" is also available, and is suitable for platers and executives responsible for the operation of plating plants where anti-pollution laws and regulations are in effect. Educational prerequisite for the course is a high school education or completion of the basic course.

Prospective students may obtain full information on these courses by writing to the Joseph B. Kushner Electroplating School, 115 Broad St., Stroudsburg 10F, Pennsylvania.

HONORS

Newell P. Beckwith

NEWELL P. BECKWITH has received a Doctor of Science degree from North Dakota Agricultural College at Fargo, N. D. This college is world renowned for its Paint Technology School, currently celebrating the 50th anniversary of its founding at the college. Mr. Beckwith graduated from this school in 1936. He then received his Bachelor of Science degree in organic chemistry. Mr. Beckwith is vice president and technical director of the Rinshed-Mason Company, Detroit, Mich., and is also general manager of the Windsor, Ontario plant.

A nationally known paint authority and an outstanding graduate of NDAC, Mr. Beckwith also delivered the 1955 Commencement address at the time he received his degree. His subject was "Formulation for Your Future."

He is currently president of the Federation of Paint and Varnish Production Clubs. He is a member of the Society of Automotive Engineers, is active in the National Paint, Varnish and Lacquer Association, and during the last five years has been a member of the field survey team which has been evaluating automotive finishes throughout the country.

NECROLOGY

ERNEST FRANCIS WATTS, 49, vice president of the Binks Manufacturing Co., died July 30.

Ernest Francis Watts

Mr. Watts joined the Binks Company in 1933 as advertising manager. In July, 1941, he was elected vice president, sales, and in March, 1942, became a member of the Board of Directors. He was very active in the advertising, promotion and sale of Binks spray painting equipment.

★ ★ ★

JAMES B. DAY, JR., 48, passed away suddenly July 23 while vacationing with his family in Wisconsin. Cause of death was coronary thrombosis.

He was secretary and sales representative of James B. Day & Co., Chicago paint manufacturers.

meetings

OF INTEREST TO FINISHERS

Sept. 10-14. 7th World Convention and Exhibit, Screen Process Printing Association. Ambassador Hotel, Atlantic City.

Sept. 14-16. Annual Shop Practice Forum, Porcelain Enamel Institute, Ohio State University, Columbus, Ohio.

Sept. 29-30. 1955 Semi-Annual Meeting, American Hot Dip Galvanizers Association, Sheraton-Belvedere Hotel, Baltimore, Md.

Oct. 3-5. 33rd Annual Meeting, Federation of Paint and Varnish Production Clubs, Hotel Statler, New York, N. Y.

Oct. 3-5. The 20th Paint Industries' Show, Hotel Statler, New York, N. Y.

Oct. 9-13. Fall Meeting, The Electrochemical Society, William Penn Hotel, Pittsburgh, Pa.

Oct. 31-Nov. 1. 11th Fall Meeting, The Magnesium Association, Hotel Biltmore, New York, N. Y.

SPECIFICATIONS ON BLAKESLEE USED DEGREASER

TYPE: Single sump vapor degreaser with auxiliary hand spray equipment with offset construction.
WORK LOAD: 7,200 of aluminum per hour with maximum single loads of 1200 lbs.
WORKING DIMENSIONS: 68" long, 72" wide, 66" deep
OVERALL DIMENSIONS: 7'8" long, 8'0" wide, 9'9" high
SOLVENT CAPACITY: 180 gallons
CONSTRUCTION: Welded degreaser tank fabricated from 3/16" mild steel zinc spray metalized on the inside after fabrication and suitability reinforced. Solvent collecting trough and upper section of tank is offset. Vapor generating sump provided with liquid level gauge, solvent thermometer, electric oil immersion heaters mounted on removable cleanout door cover plate and reinforced galvanized work rest. Top of the degreaser tank provided with light gauge galvanized sheet metal sectional covers. 180 gallon galvanized storage tank with 25 gallon pump reserve section included.
HEAT: Electric, 220 volt, 60 cycle, 3 phase. The unit is equipped with eleven 9 KW oil immersion heaters. Control equipment consists of eleven plug and receptacle sets, one General Electric thermostat for the safety vapor control, one size 5 Square D contactor, one Square D pushbutton station and one busbar completely mounted and wired.
SPRAY PUMP: 1" solvent pump complete with 1/3 HP motor and manual type motor control switch mounted and wired. Spray pump motor arranged for 220 volt, 60 cycle, single phase operation.
SPRAYS: Through flexible hose with hand spray nozzle arrangement.
DUAL VAPOR CONTROL: Consisting of galvanized water cooled control coil on inside of tank with narrow water jacket on outside. Water separator and solvent cooler included in solvent distillate line.
WATER CONTROL: One Sarco TR-54R complete with strainer, installed in water cooling system.
This is a very good heavy duty vapor spray degreasing machine. We would like to point out that even though this equipment is electrically heated, it could be readily converted to a steam heated model. The cleanout door is large enough for mounting sufficient heating coils for maintaining the workload mentioned above.

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Testing—Inspection—Research—Engineers

Consultants and specialists in corrosion, weathering and sunlight testing.

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What! Measure Viscosity in a Paper Cup?

Yes indeed, with the New GARDNER "ONE-SHOT VISCOMETER! No clean-up is necessary. It's disposable. Write for a descriptive leaflet.

GARDNER LABORATORY, INC.
DEPT. PF • BETHESDA 14, MD.

Outstanding Opportunity

Because so many sales leads (from our national advertising) are in territories not covered by us now, we are offering an unusually attractive opportunity to several successful, aggressive mfrs. reps. and salesmen now selling allied equipment lines. We are well-established manufacturer of complete line of infra-red electric baking & drying units, ovens with features unmatched by any other equipment. Unlimited earning possibilities on liberal commission plan. Write complete information: experience, lines handled, territory covered. DRIQUIK Div. Dry Clime Lamp Corp., Greensburg, Ind.

INDUSTRIAL SALES ENGINEER

With sales and engineering experience in spray equipment and related paint accessory lines. Specializing in a complete line of hot spray equipment for all types of production painting, we offer a qualified man an exceptional opportunity with a growing concern in an important industrial territory. See our advertisement in this issue, page 125. Direct your inquiry to Sales Manager, THE SPEE-FLO MANUFACTURING CORP., 720 Polk, Houston, Texas.

FOR SALE
SPEED ENAMELER
Ronci R-200

Latest Centrifugal coating machine for lacquering or enameling large quantities of small wood, metal, fibre or composition parts. All operations within the machine—Coats in 30 seconds.

Practically new—never used in production. Complete with tanks and work baskets—Original cost $2,700.00.

RENWAL MFG. CO., INC. • Mineola, N. Y.
Phone Pioneer 2-1400 • Mr. Hansburg

SALESMAN WANTED

Automatic machinery manufacturer seeking traveling representative for Eastern States; with knowledge of polishing, buffing and deburring. Give experience, age, present employment in first letter. Confidential. Write Box No. 95, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

SALES REPRESENTATIVE

Wanted salesmen thoroughly acquainted with plating industry, to sell Copper Core Chrome Plating Anodes. Excellent opportunity with one of country's leading manufacturers. Additional non-conflicting lines may be carried. Liberal compensation plan. Reply to The Gilbert Tramer Co., 1217 Main Avenue, Cleveland 13, Ohio.

LOOKING FOR A BETTER OPPORTUNITY?

As one of the nation's larger manufacturers of industrial cleaning and processing compounds and equipment distributors, we have by far the most complete line of materials for major industry, including ultrasonic equipment and cleaning compounds.

Our technological advance in products and related processes has been so rapid we must expand our sales force, particularly in the Midwest and Eastern manufacturing areas. Industrial Paint Salesmen, Chemical Engineers or men experienced in chemical processing in metal fabrication, plants, will qualify.

Compensation: Base salary, plus commissions based on sales; car allowance or car furnished, reimbursement of expenses; Profit Sharing Plan, a better than average opportunity.

If you qualify, please furnish a complete resume of employment history, age, etc. All replies confidential. Our employees are aware of this ad. Write Box 94, c/o Products Finishing, 431 Main Street, Cincinnati 2, Ohio.

The Finishing Touch **By J. A. Patterson**

"Look, lady, you can tell me your confidential business with Mr. McDoogle, I am his new confidential secretary."

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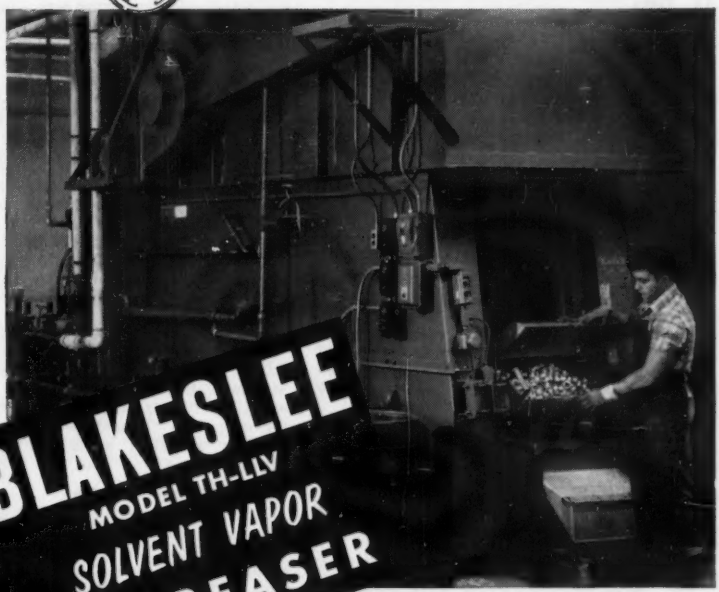

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DEGREASER

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Write for complete information on Blakeslee Degreasers Blacosolv Degreasing Solvent and Metal Parts Washers

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NEW YORK • LOS ANGELES • TORONTO

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PRODUCT LITERATURE

57. Barrel Degreaser

Information on Baronet Barrel Vapor Degreasers is given in a folder which may be obtained from Baron Industries, Inc., 241 West Avenue, Los Angeles 31, Calif. Advantages are given for each model described, and diagrams show the operational features. Specifications are shown for each of these degreasers.

58. Fans

Bulletin No. 543, being distributed by the New York Blower Co., 32nd St. and Shields Ave., Chicago 16, Ill., describes standard duty fans made by the company. Improved power limiting characteristics of these fans are described, and complete performance and material characteristics are given.

59. Metal Treatment Materials

Enthone, Inc., 442 Elm St., New Haven, Conn., has announced literature with descriptions of twenty series of special products. The types of products described cover blackening of all metals, new alkaline cleaners, stripping compounds for plated coatings and for lacquers and enamels, buffing compound removal, water displacing compounds, products for treating aluminum, alkaline solutions for removing rust, and protective compounds for iron and steel.

60. Proper Racking for Electroplating

Efficient methods of racking various shapes and sizes of parts being electroplated and the type of rack to use for each is demonstrated in a bulletin which may be obtained from Naraco, 179-181 Madison St., Paterson, N. J.

61. D. C. Power Conversion

The Bart-Messing Corporation, Dept. PR-2, 229 Main St., Belleville, N. J., has available a catalog entitled "A Guide to Better Plating Power."

62. Fingerprint Remover

A bulletin which may be obtained from E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Pa., gives information on Cosmoline 1070, a material for removing fingerprints and at the same time giving a corrosion protective film.

63. Infra-red Heating

Where can infra-red be used? What are the advantages of heating by radiation? How much does it cost? These and other questions and answers are provided in a booklet, "Applications Unlimited," available from The Fostoria Pressed Steel Corp., Dept. 622, Fostoria, Ohio.

64. Degreasing Solvent

A folder featuring Blacosolv degreasing solvent is available from G. S. Blakeslee & Co., 1844 S. Laramie Ave., Chicago 50, Ill. This pamphlet gives a description and specifications of this degreasing solvent.

65. Powdered Zinc Plating Brightener

A bulletin available from Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md., describes ARP No. 51, powdered zinc plating brightener. Full information is presented including the recommended usage of ARP No. 51.

66. Coated Abrasive Selector

Literature available from the Carborundum Co., Dept. PF 82-54, Niagara Falls, N. Y., is helpful in selecting the proper abrasive for specific applications.

67. Coloring Anodized Aluminum

The latest developments on coloring anodized aluminum have been compiled by Sandoz Chemical Works, Inc., 61 Van Dam St., New York, N. Y., and are available in booklet form to the metal finishing industry and related trades.

68. Liquid Processing Equipment

Bulletin No. PF-355, available from Alsop Engineering Corp., 1009 Keen St., Milldale, Conn., gives details on plating solution filters, agitators, and portable mixers. The "Speed-O-Plate" method of plating solution agitation is fully explained.

69. Insulating Varnish

Barrett Varnish Co., 1532 S. 50th Ct., Cicero 50, Ill., has available a data sheet covering No. 1117-B Insulating Varnish. Complete information on applications and product specifications is presented.

70. Concrete Repair

"Stonpach," a material for repairing floors damaged by acid or other causes, is described in a folder which may be obtained from the Stonhard Co., 1306 Spring Garden St., Philadelphia 23, Pa. This material is used to patch worn out spots or for complete overlays, and is resistant to acid and other detrimental conditions.

71. Aluminum Finishing Specialties

Data Sheet No. 24, obtainable from MacDermid, Inc., Waterbury 20, Conn., gives detailed information on a variety of products for finishing aluminum, including anodizing strippers, etch salts, burnishing compounds, and deoxidizers for cleaning prior to spot welding.

72. Tumbling and Honing Chips

A catalog sheet being distributed by the Universal Tumbling Supply Co., 14337 Mansfield, Detroit 27, Mich., gives details on limestone honing chips, granite tumbling chips, and Uni-Lite Aluminum Oxide Tumbling Chips.

73. Water Softeners

Troubles caused by the utilization of hard water and methods of eliminating them are discussed in bulletin No. 2386-A, available from The Permutit Co., 330 W. 42nd St., New York 36, N. Y.

74. Automatic Temperature Regulator

Bulletin 329, available from the Powers Regulator Co., Skokie, Ill., describes and gives advantages of the Powers No. 11 Self-Operating Temperature Regulator.

75. Heat Exchanger

The application of the Niagara Aero Heat Exchanger to controlled temperature cooling of liquids is discussed in Bulletin 124, available from the Niagara Blower Co., 405 Lexington Ave., New York, N. Y. Photographs of the equipment are shown, and a diagram is used to illustrate the principle of operation.

76. Plastisols

Data on plastisol coatings and the advantages thereof is given in Bulletin VP-1, being distributed by the United Chromium Div., Metal & Thermit Corp., 100 E. 42nd St., New York 17, N. Y.

77. Centrifugal Dryer

Outstanding features of the Nobles Dryer are explained in a folder which is obtainable from Nobles Engineering & Manufacturing Co., 651 E. 7th St., St. Paul 6, Minn.

78. Brass Plating Solution

Technical data on the True Brite Brass Solution is available in a bulletin which may be obtained from the True Brite Chemical Products Co., Box 31, Oakville, Connecticut.

79. Brush-Backed Polishing Head

Bulletin No. 102, being distributed by the Grinding and Polishing Machinery Corp., 2530 Winthrop Ave., Indianapolis 5, Ind., gives information on the Vonnegut Brush Backed Polishing Head, which is useful in sanding, polishing, deburring, and other finishing operations.

80. Graining Process

A brochure entitled "Polyfax—The Key to Distinctive Finishes" has been issued by the Interchemical Corp., Finishes Div., Newark 5, N. J. The booklet gives details on a process for printing wood grains and other designs on metals and other surfaces.

81. Metal Pigment Progress

A quarter century of progress as the original manufacturer of Aluminum Pastes is marked in an illustrated brochure issued by Metals Disintegrating Co., Inc., Elizabeth, N. J.

82. Cabinet Ovens

Bulletin 10-S, pertaining to cabinet ovens, is available from the Young Brothers Company, Dept. F, 1831 Columbus Rd., Cleveland 13, Ohio. A wide range of cabinet ovens for use with gas, electric or steam, producing temperatures up to 600 deg. F., are described and illustrated.

83. Silk Screen Enamel

Product information and a color card for screen process inks is available from Naz-Dar Co., 461 Milwaukee Ave., Chicago 10, Ill.

84. Paint Finishing Equipment

Descriptive literature on industrial ovens, spray booths, parts washers, dust collectors and air systems is being distributed by Newcomb-Detroit Co., Inc., 5761 Russell St., Detroit, Mich.

85. Barrel Finishing Booklet

A 55-page booklet containing useful barrel finishing information is available from the Norton Co., Worcester 6, Mass.

86. Work Gloves

Advantages of Pioneer milled neoprene gloves in handling chemicals and corrosives are discussed in a bulletin available from the Pioneer Rubber Co., 285 Tiffin Rd., Willard, Ohio.

87. Paint and Lacquer Products

Information on the Stanley line of lacquers, synthetics, Japans and enamels is contained in literature available from the Stanley Chemical Co., 31 Berlin St., East Berlin, Conn.

88. Ionic High Potential Spraying

Coating materials, power requirements, equipment and maintenance are discussed in a bulletin describing the Ionic High Potential Spray Gun, copies of which may be obtained from Scientific Electric, 105-119 Monroe St., Garfield, N. J.

89. Overspray Control

Control of overspray with RP Paint Arrestors is explained in literature available from the Research Products Corp., 1015 E. Washington Ave., Madison, Wis.

90. Immersion Heaters

A catalog available from Summit Products, Inc., 15 Vose Ave., South Orange, N. J., gives details on the operation and construction of Summit Products Immersion Heaters.

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How did one of the largest producers of plated diecastings in the automotive field lower costs and reduce rejects to less than 1% while producing the largest volume of plated work in their history?

They used the following complete Mac Dermid Incorporated cleaning cycle.

Soak Clean — METEX 203X

Heavily impacted buffing compound is removed in Metex 203X emulsion, which is used 5% by volume with water, at a temperature of 140° F. A mineral solvent layer is floated on top usually ½ to 1" in depth. Immersion time 1 to 2 minutes.

If emulsion cleaning is not desirable for any reason, Metex S-402 is recommended. Metex S-402 is a liquid solvent used 2-4% by volume at 150-160° F. Slight agitation is highly desirable. Removes buffing compounds in one to three minutes.

Spray Clean — METEX D SPECIAL

A highly inhibited alkaline spray cleaner that will not tarnish etch, or discolor highly buffed diecastings. Used 1 to 2 oz. per gallon at 150° F.

If added detergency is required, METEX A SPECIAL is recommended, as it may be used as high as 4 oz. gal. at 150° F. without foaming.

Electrocleaning — DYCLENE ES

Heavily inhibited alkaline reverse electrocleaner. Will not etch or discolor at 8 oz. gal., 190° F., 6 volts, even for prolonged cleaning periods. When used anodically, perfectly activates the zinc surface so that the resultant electroplate will be bright, adherent, and will not blister.

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I Nearly Blew My Top!

"The other day the Detrex man pointed out to me that metal cleaning and surface preparation accounts for ¼ to ⅓ of all the operations in the average metal-working plant. It sure caught me by surprise and, frankly, it started me thinking about our own plant. After a complete survey we found over ¼ of all our operations were of that type.

"What was immediately apparent to me was how important even the smallest single savings would become when multiplied by the number of operations involved. It certainly changed my way of thinking on the importance of metal cleaning and surface preparation. When I think of how little regard we had been giving those operations, *I nearly blew my top.*

Take, for example, our metal parts washing operations. By switching to Detrex cleaners we were able to effect savings of a size we never before thought possible. One of the things that really impressed us about Detrex Emulsions was the fact that they not only do an excellent job of cleaning but they also retard rust . . . and all in one operation. That alone saved us considerable money.

"Why don't you let the Detrex man in your area make the same type of survey in your plant? It isn't going to cost you a penny if he doesn't show you how you can save money. If he does, you'll probably buy some chemicals and/or equipment, but more important you'll be saving big dollars. You have nothing to lose and everything to gain. Why not give him a crack at it next time he calls?"

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